AMERICAN FRUIT GROWER

IN THIS ISSUE

NEW SOIL-SAVER *for* ORCHARDS

•

WAR TO END WAR *of* FRUIT INSECTS

•

GROWERS SECTIONAL CAMPAIGN

•

LIMES FOR THE NATION

•

COMING!
ANNUAL DIRECTORY EDITION

APRIL
1936

A GREAT CONTRIBUTION
TO EASIER, FASTER MORE ECONOMICAL FARMING

Guarantee—This heavy, Super-Traction tread is guaranteed not to loosen from the tire body under any conditions, and all other parts of the tire are fully guaranteed to give satisfaction.

THREE years ago Harvey S. Firestone conceived the idea that farm work would be easier, faster, and more economical if it were done on rubber.

It was on the Old Homestead farm in Columbiana County, Ohio, which Mr. Firestone still operates, that he directed engineers and developed a practical pneumatic tire for tractors and every other wheeled implement on the farm. The result was a super-traction tire so unusual in design and so amazing in performance that a patent was issued on the tire by the United States Patent Office at Washington.

On tractors, Firestone Ground Grip Tires will do the work 25 to 50 per cent faster with a saving of 25 to 50 per cent in fuel cost. On sprayers, combines, grain drills and harvesters they reduce draft 40 to 50 per cent; do not pack the soil, sink into soft ground or make ruts; protect equipment; do not damage crops and vines; speed up every farm operation.

One set of tires will fit several implements. Tires can be changed quickly from one implement to another. Two or three sets are all you need to take care of practically all your farm implements.

See the Firestone Tire Dealer, implement dealer or Firestone Auto Supply and Service Store today — and in placing your order for new equipment, be sure to specify Firestone Ground Grip Tires on your new tractor or farm implement.

FOR CARS

	Heavy Duty
4.40/4.50/4.75-21 — $7.85	$ 9.80
4.75/5.00-19 ..... 8.50	10.60
4.50/4.75/5.00-20. 8.35	10.35
5.25/5.50-17 ..... 10.55	12.50
5.25/5.50-18 ..... 10.65	12.75
6.00-16..... 11.95	14.15

FOR TRUCKS

32x6 Truck Type	$27.65	7.50-20.	$35.20
32x6 H.D.	36.25	7.50-24.	39.00
6.00-20.	16.95	8.25-20.	49.30
6.50-20.	21.95	8.25-24.	54.75
7.00-20.	29.10	9.00-20.	60.75

FOR TRACTORS

5.00-15..	$ 9.35	8.25-40	$68.40
5.50-16..	9.95	9.00-36	66.55
6.00-16..	11.15	11.25-24	59.95
7.50-18..	15.70	12.75-28	86.85

Other Sizes Priced Proportionately Low

READ WHAT FARMERS SAY ABOUT THESE REMARKABLE TIRES

"With my tractor on Ground Grips it has about one-third more power, pulls two sixteen-inch plows in high gear under all conditions."—R. A. *Wharram, Stanley, Ia.*

"Firestone Ground Grip Tractor Tires save about half a gallon of tractor fuel per hour. They show very little wear after two years."—*L. R. Love, LaSalle, Colo.*

"In doing custom work on Ground Grip Tires I can net $5 a day over the amount earned on steel lugs."—*Harold Elsbury, Sutherland, Ia.*

"Ground Grip Tires give my tractor 100% traction on soft, wet ground."—*George State, Minot, N. D.*

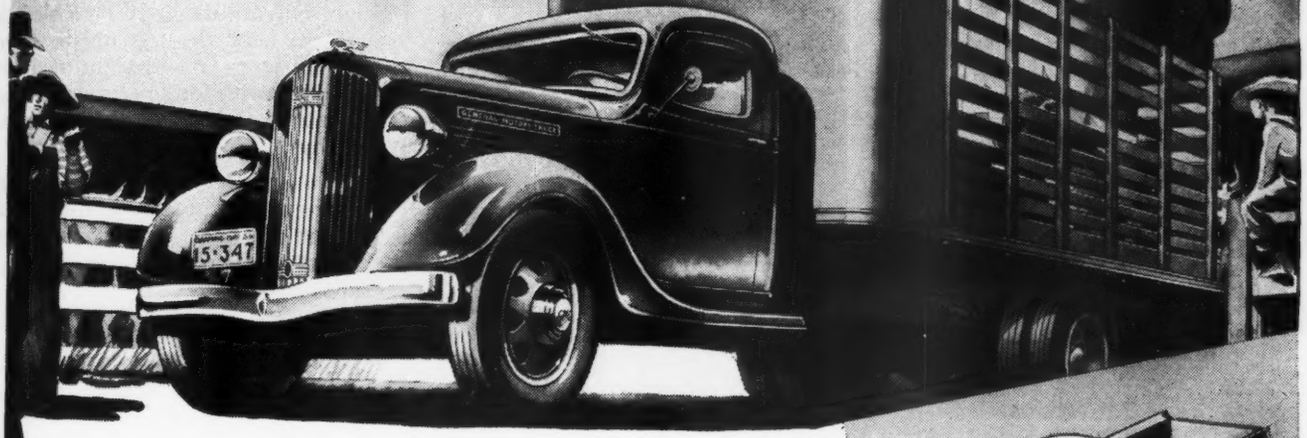
"Ground Grip Tires won't injure fields or road beds, or damage crops or seedings."—*Hugh G. Humphreys, New Hartford, N. Y.*

Listen to the Voice of Firestone, Monday evenings, N. B. C.—WEAF Network

Firestone

© 1936, F. T. & R. Co.

Built for the Farm Lands



A QUALITY GMC 1½-2 TON TRUCK ... NOW PRICED WITH THE LOWEST

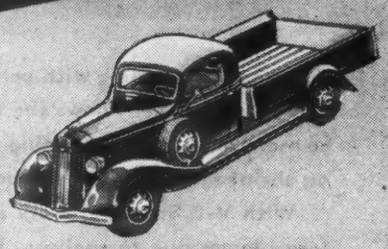
Yes, you can now buy a big, rugged GMC at a price that challenges the field of lowest price . . . Last year thousands of seasoned truck buyers gladly paid many dollars more for this many-feature GMC. Now, it is not only priced with the lowest but also has many additional money-saving features including advanced streamlined styling that those engaged in farming and allied activities will be quick to value in a dollars-and-cents way.

$525 CHASSIS F.O.B. PONTIAC

SENSATIONAL DUAL PERFORMANCE

Saves millions of motor revolutions per year. Saves as much as 28% on gas. Lower upkeep expense. Truck will climb steeper grades, travel faster on the level, handle full loads easier. Ask about it!

Time Payments available through our own Y.M.A.C. 6% plan



A GMC QUALITY LIGHT DELIVERY TRUCK

Here's a truck big enough and strong enough to exactly fit the needs of tens of thousands of farmers. Built to accommodate a body more than 7 feet long. A distinctive truck. One that's purposely engineered for greater economy, improved performance, longer life. A truck of the high quality you'd expect in a GMC —yet priced low.

$425 CHASSIS F.O.B. PONTIAC

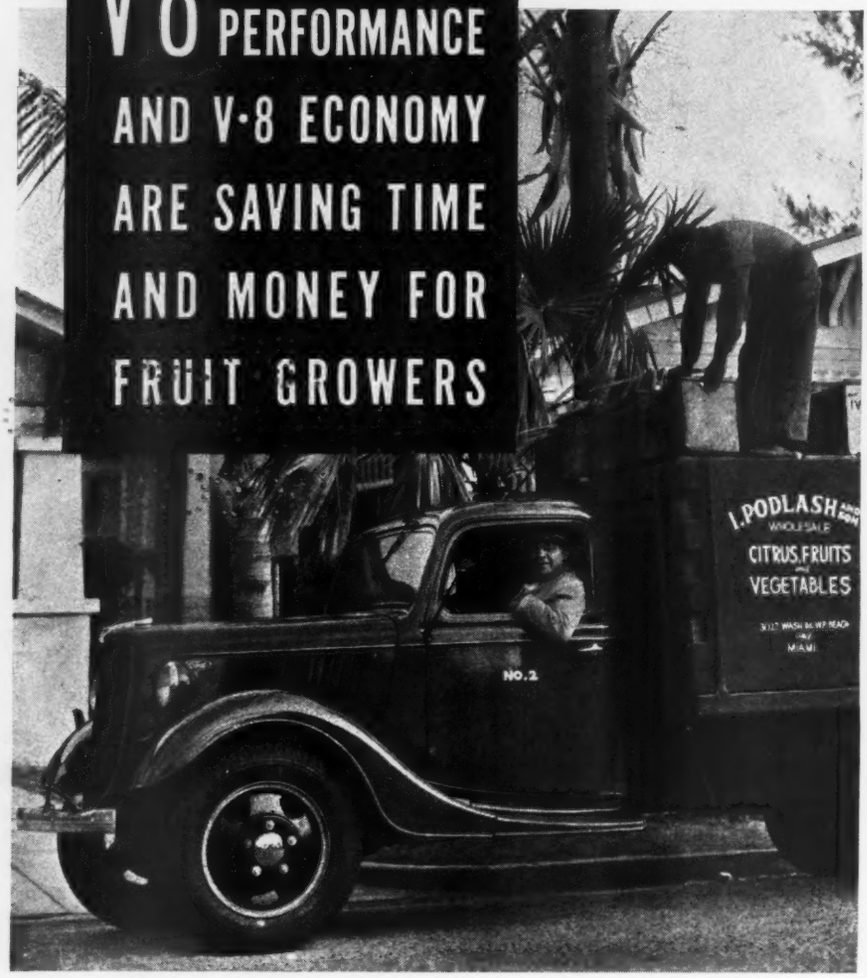
General Motors Trucks and Trailers

General Motors Truck Company, Pontiac, Michigan

½ TO 15 TONS

V-8 PERFORMANCE AND V-8 ECONOMY ARE SAVING TIME AND MONEY FOR FRUIT GROWERS

The 157-inch wheelbase Ford V-8 Stake Truck



When you are dealing with perishables, you are dealing with profits. Every fruit grower knows the truth of that statement. That is why so many growers are changing to Ford V-8 Trucks and saving money on shrinkage, as well as on operating and up-keep costs.

With V-8 Speed, growers are shipping farther and faster, with lower losses due to spoilage. With V-8 Economy, they are cutting hauling costs and realizing bigger net profits. Owners report savings in fuel, oil, tires, repairs, depreciation, capital investment, interest and maintenance. Many report additional economies in license fees, insurance, taxes and wages. These savings prove that V-8 Economy is OVER-ALL ECONOMY.

Your Ford dealer will gladly let you try a Ford V-8 Truck with your own loads, under your own operating conditions. Get in touch with him today and set a date for an "on-the-job" test, without cost or obligation. Find out how V-8 Performance and V-8 Economy will save time and money for you!

Any new 112-inch wheelbase Ford V-8 Commercial Car can be purchased for $25 a month, with usual low down-payment. Any new 131½-inch or 157-inch wheelbase Ford V-8 Truck can be purchased with the usual low down-payment on the new UCC ½% per month Finance Plans.

FORD V-8

TRUCKS AND COMMERCIAL CARS

Nationwide News

From bud to breakfast table in 159 days—such was the record of the grapes of Charles F. Ward, San Antonio, Tex. He budded an Ellen Scott variety of grape into the common wild mustang vine and three buds produced seven bunches of grapes 159 days later.

▲ ▲ ▲

Apple growers have had much trouble in northern Oregon with bears invading the orchards, taking apples, knocking over crates and boxes, robbing bee hives, etc.

▲ ▲ ▲

One of the latest developments in the harvesting of English walnuts involves the use of a shaking tower. These towers are about 20 feet in height and are mounted on a sled. A platform near the top of the tower supports from two to eight men who are armed with long poles with which they shake down the nuts from the tree tops.

▲ ▲ ▲

Japanese persimmons are becoming increasingly popular on the Pacific Coast and also throughout the southern states. They are dried like figs, grapes and prunes.

▲ ▲ ▲

Apples from Snyder County (Pa.) have won honors at the Pennsylvania State Farm Show for the past five years. This year they captured top honors against a highly competitive field. Final packing for the show was done by Floyd Grabill, Richfield; John T. Mitterling, Mt. Pleasant Mills; Charles Snyder, Middleburg; Ernest Ritter, Winfield; W. W. Brunner, Paxtonville; S. H. Spigelmyer and Charles E. Wagner, McClure; and A. W. Hetrick, Beavertown.

▲ ▲ ▲

Growers near Thompsonville, Conn., have noted a demand in that section for larger quinces. These larger fruits are not available in that section and the growers are taking advantage of the observed demand and are planting trees of the larger quince varieties.

▲ ▲ ▲

In his annual report J. M. Diehl, secretary-treasurer of the East Central Fruit Growers Production Credit Association, stated that $850,000 had been borrowed from the organization by growers in five states during the past fiscal year and that all but $65,000 of this had been repaid. The remainder is expected when the fruit on hand is moved from storages.

▲ ▲ ▲

Tentative plans for the New England Apple Institute call for the establishment of headquarters at Poughkeepsie, N. Y., and Ayer, Mass.

FILL MY CUP WITH "ASTRINGENT LEAD" ...AND I'LL KILL OFF THE WORMS AS FAST AS THEY COME.

THE toxic effectiveness of "Astringent" Arsenate of Lead shows 15% to 20% better control than without an astringent. This is not our claim, but the observed results by thousands in every apple and pear growing district.

"Astringent" Lead's extra efficiency is widely discussed whenever horticulturists meet. It is recognized as a standard product, and is in standard use. The need for better codling moth control is a dire one in orchards which have not yet used the "Astringent" product. This of all years is the time to cut down the culls and cash in on a full crop of "Extra Fancy" fruit.

Read over the reports in "Cash Crops" and you can't help being convinced.

ORCHARD BRAND

REG. U.S. PAT. OFF.

SPRAYS AND DUSTS

GENERAL CHEMICAL COMPANY . . . 40 Rector St., New York

Also: ATLANTA, BALTIMORE, BOSTON, BUFFALO, CHARLOTTE, CHICAGO, CLEVELAND, DENVER, KANSAS CITY, LOS ANGELES, MINNEAPOLIS, MONTEZUMA (GA.), PHILADELPHIA, PITTSBURGH, PROVIDENCE, SAN FRANCISCO, SEATTLE, ST. LOUIS.

Please send me a copy of "Cash Crops." I am interested in "Astringent" Lead and also in the product (s) I have underscored below.

Name & Address .....

ALSO: LIME SULPHUR SOLUTION — DRY LIME SULPHUR — OIL EMULSION "83" — STANDARD ARSENATE OF LEAD — CALCIUM ARSENATE — ARSENITE OF ZINC — BASIC ZINC ARSENATE — PARIS GREEN — BORDEAUX MIXTURE — DRITOMIC SULPHUR — APPLE DRITOMIC SULPHUR — PARADICHLOROBENZENE — NICOTINE SULPHATE 40% — X-13 (PYRETHRUM EXTRACT) — FUNGI (SULPHUR) DUST — SULPHUR-ARSENICAL DUSTS — BORDEAUX-ARSENICAL DUST — COPPER LIME DUSTS — ROTENONE DUST

THIS *New* TRACTOR TYPE TIRE GIVES YOU MORE GRIP . . MORE PULL!

ON FARM TRACTORS, traction is all-important. The better grip and pulling-power of this New Goodyear All-Traction Tractor Type Tire means better work, faster work—greater savings in time, fuel and money.

Let us arrange a demonstration. Watch those deep-cut diamond blocks grip like spade lugs! See those lug bars down the sides take hold in furrows and soft ground! Watch the dirt fall from those wide, self-cleaning grooves! The former Goodyear farm implement tire was an exceptionally fine tire. But here's a tractor type tire that gives you—

MORE OF EVERYTHING

50% More Traction
48% More Rubber
30% More Draw-Bar Pull
100% More Shoulder Tread
30% Better Cleaning

—and it costs no more

We'll be glad to arrange a demonstration for you. PRINT your name and address in the margin below, tear it off and mail to Dept. A-5, The Goodyear Tire & Rubber Company, Inc., Akron, Ohio.

TRACTION *ALL WAYS*

Here's sure traction—forward, backward or on hillsides. In mud. In sand. On highway.

ON YOUR TRUCKS, TOO, GOODYEARS SAVE YOU MONEY

Whatever your trucks do, there is a Goodyear Truck Tire that will give you better, longer, more economical service. Recent additions to the Goodyear line include the Pneumatic Lug for maximum traction in off-the-road service and the Studded Tire for cars and light trucks that travel unimproved roads in mud and snow. Ask your Goodyear dealer to show you just the right tire for your truck.

GOODYEAR MONEY SAVERS FOR THE FARM

AMERICAN FRUIT GROWER

TITLE REGISTERED IN U.S. PATENT OFFICE

APRIL 1936

VOL. 56 • THE NATIONAL FRUIT MAGAZINE • NO. 4

"THOSE WHO ARE OF GOOD JUDGMENT"

WE spent a memorable day last fall. Indeed, we doubt if we shall ever quite forget it. It was harvest time on a large and prosperous fruit farm and we were visiting the owner. By his side we walked through the orchards inspecting block after block of finely cared for trees, most of them heavily ladened with goodly fruit. We stood with him in the packing shed, our nose enchanted by the pungent aroma of freshly picked apples, our eyes fascinated by the scene of bustling activity. We inspected his cold storage plant where a part of the bountiful crop would be held for mid-winter sales. Afterwards at his urging we went over his books and saw the record contained therein of his years of success. As the day came to a close we realized we had spent it in the company of a "king among men." A kindly, open-faced, American type of king, but a king, nevertheless, who ruled benevolently over his own domain of independence.

"You have certainly been fortunate in your operations," we said. "Just what would you say was the secret of your success?"

Earlier in the day we had learned that our host had inherited his first small piece of orchard land; that he had the opportunity of going to college where he had received a thorough training in horticulture, and that, in addition, he had always had a great capacity for work. We waited for his answer and rather expected it would be a learned exposition on the coordination of success factors—the sort of answer which would, perhaps, make an up-to-the-minute article for the pages of *American Fruit Grower*.

"Just common sense," he replied. "You see my dad was rather famous locally for his common sense, and I guess I inherited some of it. Judgment is what you probably would call it." And then because he shrewdly surmised we had expected a more formally learned answer, he quoted Euripides to the effect that "fortune truly helps those who are of good judgment."

And there you have the secret of success in fruit growing compressed into one word. It is Judgment.

Schools and experiment stations can train and instruct you in horticulture and pomology. Attendance at the meetings of state and national societies will give you the benefit of hearing the experiences of other growers. Frequent contact with neighboring growers will keep you in touch with what they are doing. But when it comes to the successful operation of your own fruit farm you must use your own head, you must make your own decisions. And success or failure will depend upon the kind of judgment you exercise.

When to spray, what spray material and how many applications? You can get expert advice upon the subject of spraying, but in each case you must make the final decision. You must stand or fall upon your own judgment. What kind of a new sprayer will it be best to buy? Again you can get advice, but once again you must judge and decide. Will investment in an additional motor truck prove an economy move over a period of time? And what make, type and size of truck is best for the purpose in mind? Shall you build your own cold storage plant or continue to depend upon available commercial storage? These questions, and countless more like them, confront the fruit grower, month by month, throughout the year. Sound judgment is needed in answering each and all of these questions, for each involves the investment of time and money.

To succeed as a fruit grower one therefore must be capable of considering facts and of working out answers to recurrent problems even though they may often be disagreeable and difficult problems.

Fortune *only* helps those who are of good judgment.

CONTENTS

Nationwide News 4

Crotalaria—New Cover Crop Moves North to Replenish Poor Soils 9
By J. Francis Cooper

War to End War of Fruit Insects 10
By C. P. Clausen

Growers Foster Sectional Campaign 11
By W. H. Zipf

Limes for the Nation 12
By Paul F. Coe

"Going to Market"—American Fruit Grower Second Annual Directory Edition Coming in June 13
By Dean Halliday

Peach Trends 14
By Jonas Howard

State News From Near and Far 16

Camera Glimpses 18

Notes on Nut Culture in Illinois 19

American Pomology 20
A Page Conducted in the Interests of the American Pomological Society

"Little Leaf" Control 21

Notes and News from the Field 23

Claims "Hardy" Honors After Tests During Coldest Winter in 50 Years 26

Successful Orchards 30
A "Round Table" Page for Every Grower

AMERICAN FRUIT GROWER
Published Monthly by
AMERICAN FRUIT GROWER PUBLISHING CO.
1370 Ontario St., Cleveland, O.

SUBSCRIPTION RATES

Domestic, Except Cleveland, 3 years $1.00. 1 yr. 50c. Cleveland and foreign (except Canada) $1.00 per year. Canada, 50c per year.

Entered as second-class matter at Post Office at Cleveland, Ohio, under the Act of March 3, 1879. Additional entry at Mount Morris, Illinois.

CHICAGO REPRESENTATIVES
J. C. BILLINGSLEA CO.,
123 W. Madison St. Phone—Central 0465

NEW YORK REPRESENTATIVES
ROGER FISON, EASTERN MGR.,
280 Madison Ave. Phone—Caledonia 5-5300
F. W. FINN, NATIONAL ADVERTISING
220 East 42nd St. Phone—Murray Hill 2-0997

E. G. K. MEISTER
Publisher

DEAN HALLIDAY
Managing Editor

DR. J. H. GOURLEY
Associate Editor

WILLIAM H. ZIPF
Field Editor

T. J. TALBERT
Contributing Editor

MARY LEE ADAMS
Home Economics Editor

INTERNATIONAL HARVESTER

When It's Time To Buy . . .

Invest in the BEST!

Above: Here is the long-popular McCormick-Deering 10-20 Tractor at work—operating an orchard spray rig.

Above: The McCormick-Deering T-20 TracTracTor—with low orchard seat—pulling a heavy offset disk harrow in a Georgia orchard.

Below: The compact McCormick-Deering 0-12 Tractor pulling a McCormick-Deering Grove Plow in a Florida grove.

IT MAY be all right to take chances on small things, but when it is time for a major step that will affect all your working days and your entire family's welfare, chance and experiment must be avoided. Your purchase of a tractor is such a step. When you invest in tractor power you want to be sure of many things. You want it to be of utmost utility the year around; to be perfectly adapted for good work with many machines; and to be of such lasting quality that it will still be handling your work years from now.

International Harvester and your McCormick-Deering dealer give you this assurance in fullest measure. Your choice of a tractor in the McCormick-Deering line—whether it be orchard tractor, regular wheel-type, crawler, or Farmall-type—is the most capable tractor that money can buy. You can bank on International Harvester experience! Thirty years of progress, with both power AND power machines, has made this Company the largest tractor builder in the world. You will get best performance, economy, and service from a McCormick-Deering tractor.

Hundreds of thousands of orchardists and farmers know that these are FACTS. Join the great majority. Consult your McCormick-Deering dealer.

INTERNATIONAL HARVESTER COMPANY
(Incorporated)
606 So. Michigan Ave. Chicago, Ill.

McCORMICK-DEERING

CROTALARIA

NEW COVER CROP MOVES NORTH TO REPLENISH POOR SOILS

By J. FRANCIS COOPER

Editor, Florida Agricultural Extension Service

ONE of the most promising summer cover crops for orchards and vineyards of all kinds has come into prominence in the Southeast during recent years and is spreading to northern states rapidly. This new crop is Crotalaria, a bushy, erect, leguminous plant which produces a tremendous growth. As a soil improving crop for poor soils it has no equal in the United States today.

Several species of Crotalaria (rattlebox) are native to eastern and southern United States, but they are all small and of little consequence. The two species which have been giving such good results in the Southeast—Crotalaria spectabilis and Crotalaria striata—have been introduced from tropical countries by the U.S.D.A. and the Florida Experiment Station. Many other species are under test in the Florida station's plant introduction garden now, and it is entirely possible that some of them will come into general use later.

Both spectabilis and striata are bushy in growth, somewhat resembling soybeans but more branched. Both grow from four to six feet tall. Both set seeds along the terminals of both main and branch stems, and produce from 300 to 600 pounds of cleaned seed per acre. The seedpods of both species are small, somewhat resembling those of garden or English peas. When mature they have a tendency to burst and scatter the seed in all directions. The seed are small, somewhat resembling cleaned alfalfa or beggarweed seed. The spectabilis has simple leaves, and sets all of its seed at one time, while the striata has trifoliate leaves and sets seed indeterminately. The flowers of both are yellow, those of the spectabilis being more showy and ornamental.

(Continued on page 29)

facts

about this "soil saver"

Was introduced into this country from the tropics by the U.S. D. A. in 1909.

Bushy in growth (as shown by photograph at right).

Produces an abundance of seed (as shown by the photograph above).

Economical cover crop as only ten pounds of seed are required per acre.

Promises to be a poor land "alfalfa" as it replenishes the plant nutrients in the soil.

Plenty of seed available at a reasonable price.

Strains being developed for forage purposes.

Is an established summer cover crop in southeastern states and is now moving North.

Because of woody stem it is good for keeping snow from drifting against trees and vines.

Lemons, oranges and grapefruit infested with mealy bug (the smaller white masses). The larger white marks are the Cryptolaemus (parasite) larvae feeding and the round black spots are the adults of the Cryptolaemus.

Below—Liberating ladybird beetles and Cryptolaemus mealy bug feeders in orange grove.

WAR TO END WAR of Fruit INSECTS

By C. P. CLAUSEN

Bureau of Entomology & Plant Quarantine
United States Department of Agriculture

THE control of insect pests affecting fruit trees is often one of the most serious problems confronting the grower. In many sections it is this factor more than any other which determines whether fruit can be produced at a cost sufficiently low to leave a margin of profit when the product is marketed. The standard methods of control consist of the application of insecticides in liquid or dust form, or fumigation, dependent upon the insect involved. The seriousness of these insect pest problems makes it essential that every control possibility shall be fully considered and that every agency which may contribute to control shall be employed.

In some cases biological control is a practical aid to chemical or mechanical control, or may replace it entirely. Biological control consists of the utilization of parasites and predators to reduce the infestation. This may be sufficient to eliminate the need for other measures, or it may reduce the number of applications required. It should be emphasized, however, that the practicability of this method can be determined only by extensive experiments, and that the grower himself is not in a poistion to reach an independent conclusion on the subject. The main reliance for control should be placed in the standard chemical or mechanical methods until other measures have been fully tested and recommended by federal or state agencies.

The most successful efforts along biological control lines have been against citrus insects. In California the cottony cushion scale and the citrophilus mealy bug were completely

(Continued on page 24)

An attractive billboard used by the Ohio Apple Institute to keep their fruit before the consuming public, at one of the busiest street intersections in Cleveland.

GROWERS FOSTER SECTIONAL CAMPAIGN

By W. H. ZIPF

WITH the slogan, "Ohio Apples Taste Best," growers in the vicinity of Cleveland have inaugurated an organized advertising campaign to aid in moving their surplus apples. Their organization is known as the Ohio Apple Institute and was started by the growers and Cleveland commission merchants at the winter meeting of the Ohio State Horticultural Society. Not content to sit idly by while their surplus apples remained in storage, these growers banded together in an attempt to create a demand for their apples. Officers of the Ohio Apple Institute are Clyde S. Holland, president; Herman Mantle, treasurer; and Herbert C. Neal, secretary. To initiate their campaign in the best possible manner, the group secured the services of Kent A. Nesbitt, professional Cleveland advertising and publicity counsel, who is directing the campaign.

An emergency fund was raised to finance the campaign. The present surplus of apples in storage in the Cleveland area was a motivating factor in starting the organization. Financial means were secured by contributions from individual growers.

The co-operation of the three leading Cleveland newspapers has been secured in publishing attractive recipes on their home economics pages. Local home magazines also have donated space for publicity. The co-operation of the Central Outdoor Advertising Company has been secured and they have donated space for the billboard shown in the photograph above. It is located at a strategic point in Cleveland where traffic is heavy. Paid advertising is limited because of the financial setup of the organization.

Radio is being used in the form of home talks given at frequent intervals each week over the leading Cleveland radio stations. These talks are a part of the regular home radio programs featured by these stations and a listening audience already has been established.

Small advertisements appear each Friday in the three Cleveland newspapers and this is bolstered by ads in the local home magazines and trade papers such as *Your Garden and Home* and the *Cleveland Grocer*. In the advertising are featured apple recipes that are written to appeal to the housewife. One of the newspapers has just finished a series of cooking school sessions and in each of the programs of the school there was featured some use of apples. This co-operation was gained by those active in the affairs of the Ohio Apple Institute. At each meeting of the Cleveland News Home Institute, as the school was known, attendance prizes were presented by the apple institute.

Another interesting "stunt" being featured during the campaign is a contest over one of the radio stations to present to some worthy institution a free supply of apples. This institution is selected by those who send in votes, each vote being a sales slip showing the purchase of apples and the name of the favorite institution written across the top of the slip.

Home economic counsellors for the local utility companies have been given material on the use of apples and asked to co-operate with the institute in promoting the greater use of apples. This type of promotion is reflected in direct teaching of the housewife with the resultant use of the products in amounts suggested by the counsellors.

Chain and independent grocers have been contacted and are featuring Ohio apples in their newspaper advertising which lends another link to the plans of the institute for active promotion for the housewife. With the advertising of these retail outlets is linked the manner of display of the fruit and the printed displays used in the stores. All of these factors have been considered and acted upon by the institute.

Those who have been in active charge of the campaign stressed the point that with such an activity must be combined intensive individual sales effort. They state that the success of such a venture will be directly proportional to the amount of individual

(Continued on page 25)

This inviting lime package caters to the consumer by displaying the fruit in an attractive manner. Courtesy Harold Kendall, Cleveland Manager, Calavo Growers of California.

LIMES FOR THE NATION

By PAUL F. COE

LIMES were probably introduced into the United States by Spaniards who brought them from the West Indies or from Spain. For many years, limes were not distinguished by name from lemons. Most early writers, therefore, failed to refer to the lime specifically. This seeming neglect, however, was of little significance other than historical, since it was not until about 1870 that our citrus industry began to attain commercial proportions. The cultivation of limes for market lagged behind that of oranges, lemons and grapefruit. Incidentally, it is interesting to observe that during the decade previous (circum 1860) the railroads began their great period of expansion. Doubtless the large scale domestic production of citrus fruits was a direct outgrowth of the advent of this transportation medium. A further, although subordinate aid was provided by the development of water transportation.

In the production of limes, nature shoves into the background the parts played by capital and labor. Limes imported from Cuba, Mexico and the West Indies (principally Dominica) often are grown wild on marginal or sub-marginal land. They are gathered and sold by natives who find their meager earnings sufficient to provide their mere subsistence living requirements.

In contrast with the lime of foreign countries, the lime of the United States is cultivated. It is usually grown jointly with oranges, lemons and grapefruit in the Florida Keys or in California. Lower Texas is probably well suited to the growing of limes, but is not yet to be considered an active producer, since this section ships annually only a few car loads to distant markets. Of the limes grown in the two important domestic areas, the California fruit is superior in flavor, lasting quality and seedlessness; but that of Florida has the advantage of proximity to the large markets of the East and of the Middle West. The Florida lime, therefore, enjoys lower express charges and requires less time for marketing. However, the California and the Florida limes seldom compete with each other, since they are, in the main, grown in different seasons of the year. Both compete in varying degrees with the Mexican lime.

While in the United States some limes are consumed in the culinary arts, the chief use is in preparing beverages. In most instances the fresh fruit is demanded, but bottled extracts and drinks are also used to a large extent. However, in India and in other foreign countries where limes are grown in abundance, they are employed in flavoring jellies, jams and marmalades, and as a garnish for fish and some meats. Many doctors recommend limes for their health-giving qualities. In fact, as early as 1804 the medical staff of the English Navy prescribed limes in the diet of sailors, since this fruit is rich in the anti-scurvy vitamin C.

The bulk of the yearly lime crop is consumed during the summer months. As with orange, lemon and synthetic flavored drinks, limeade is demanded when the weather is uncomfortably warm. December, however, with its parties and feasts claims an important secondary place in the consumption of limes. Hence, the market is then active and the price high.

As a type study of distribution, consider the marketing of the Mexican limes. The native of Mexico gathers the limes, and on the back of a burro takes them to town. The railroad journey of the limes from this Mexican town to a Texas importer is interrupted by a United States customs official who places a government duty on them. From Texas (usually Laredo) the limes are diverted to Chicago, or to some other large city, where a lime dealer sometimes repacks them into cartons before they are sold to a wholesale fruit house, or are peddled about the city. When the limes are sold to a wholesale fruit dealer, either locally or out of town, the ultimate consumer purchases them

(Continued on page 22)

"Going to Market"

AMERICAN FRUIT GROWER

2nd Annual

DIRECTORY EDITION

Coming in June

By DEAN HALLIDAY

"GOING to market" is one of the most important operations in that great business—of which you are a part—America's Billion Dollar commercial fruit growing industry.

That is why your copy of AMERICAN FRUIT GROWER'S second annual Directory Edition, to be published in June, will prove to be your "best seller." Its editorial pages will be devoted to a complete exposition of the importance of packing and packaging as a means to more profitable marketing of fruit products. You will find in this Directory Edition articles and illustrations which will show you how the magic of modern containers makes for multiple sales instead of single purchases—customers instead of chance buyers.

This Directory Edition will come to you as the regular June number of AMERICAN FRUIT GROWER but you will want to keep it as an ever ready reference book and handy guide in scheduling your own seasonal selling programs.

For example, in making plans this year for the packing and sale of your fruit products wouldn't you like to know all there is to know about "A New Fruit Container That Outsold Old Style Packs by 60 Per Cent"? And wouldn't it help you in your own sales planning to know the scientific reason "Why It Is Easier to Sell by 'Eye' Than It Is by 'Ear'"? In selecting new labels for boxes or containers wouldn't it help you to have up-to-the-minute information about "Colors That Sell versus Colors That Repel"? These are just a few, a very few, of the illustrated articles which will make the coming June Directory Edition noteworthy as the first modern sales manual for fruit growers.

But that is not all!—

In addition to serving as a handbook of fruit merchandising the Directory Edition will also prove to be a trustworthy guide for you when you "go to market" to purchase the many kinds of supplies and materials which you as a modern fruit grower require for efficient producing operations.

AMERICAN FRUIT GROWER'S June edition will contain the now famous Buyer's Guide section. Again, as last year, this Directory will be your handy reference book when it comes to answering that recurring question, "What to Buy and Where to Buy It?" Our staff of research workers has been busy for months compiling, revising and adding to the indexed lists of manufacturers and distributors of all types of implements, tools, equipment and machinery required by fruit growers; materials and supplies of every kind, seasonal requirements, construction materials, marketing and selling accessories, as well as household needs on fruit farms. In fact you will find listed for ready reference in the coming Directory Edition every type of efficiency requirement—from motor trucks to brand tags—that you as a wide awake, alertly progressive AMERICAN FRUIT GROWER reader need, week by week, and month by month, for more productive and profitable fruit growing.

Don't miss this two-in-one "Going To Market" guide. Check up at once and if you find that your subscription will expire before June send in your renewal without delay and thus make certain of receiving your copy of AMERICAN FRUIT GROWER'S bigger and better second annual Directory Edition.

Scene in a Georgia Elberta orchard at time of full bloom

PEACH TRENDS

By JONAS HOWARD*

PEACH growers, like their brother apple growers, have found it increasingly necessary to take added precaution in the production of good fruit. This bold fact has had its inception during the past five years, and a discussion of the trends that appear in the immediate offing, as well as some of the things that have taken place, might result in a clearer understanding of the industry's problems.

Two factors have been distinctly against the peach industry during the past few years. These are drought and freezing weather. The damage resulting from these conditions has been widespread, particularly in the case of freezing. About the only state free of ruinous temperatures has been California.

The effect of low temperatures on the industry has been clearly shown in most peach sections above the Mason-Dixon line during the recent cold spells. With this cold has come bud killing and tree injury, and in most of these sections discreet pruning has been necessary and intelligent cultural operations will have to be followed to restore the productivity of the plantings for the coming year. By pruning out the injured portions of the tree and continuing regular, beneficial cultural operations, good wood should be produced for the 1937 crop.

On the other hand, the extremely cold weather has been a boon to the southern peach producer in that low temperatures are necessary in order that the trees may come through the dormant period successfully. When cold weather does not occur, the trees fail to snap out of dormancy in the spring and a poor crop is the result. This situation occurred in Georgia in 1932 and was the cause of the lessened crop in the section that season.

The weather problem brings to the forefront the necessity for a hardy variety that will have market size and good quality. There have been several introductions during the past few years of superior varieties and the manner in which they have withstood the rigorous season just past will determine, to a great extent, their usage in the future, particularly in those sections having experienced drought and low temperatures.

In spite of the ominous tone presented in the above, peach growers, as a whole, are not discouraged, as is clearly demonstrated by their interest in new plantings. In order to maintain the present average, normal production of 52,000,000 bushels, there must be some increase in planting. In the Georgia peach districts, a seven per cent increase in plantings must take place each year if the present status of the industry in that section is to be maintained. This figure, with certain modifications, might be indicative of the situation in other peach localities.

At the present time there is no commercial variety to replace Elberta as a long-distance shipper. In many peach sections the varieties that mature earlier than the Elberta have been receiving preference in the new plantings.

The Cumberland-Shenandoah section growers are planting some of the recent New Jersey, Michigan and Vineland, Ont., variety introductions. The following variety description is in the order in which these new sorts ripen ahead of Elberta.

Oriole is a yellow flesh peach, as is the Golden Jubilee, both of which were introduced by the New Jersey station. The latter has a good record in the New Jersey peach sections and last fall topped the New York market, but it does not do well in the South. South Haven and Hale Haven are Michigan introductions and are yellow-fleshed, the latter being firm. Vedette, Valiant and Veteran originated at the Vineland, Ont., station and have given good results in recent plantings. Eclipse is another of the recent New Jersey varieties. It is yellow-fleshed, as are the Canadian varieties, and ripens just before Elberta.

Pruning of the young peach tree is not necessary and the practice is discouraged, as it impedes leaf production.

Thinning of the peach is closely correlated with pruning, but in no instance should these important practices be substituted for each other. For the optimum production of fruit on the Elberta, there should be from 10 to 15 leaves per fruit. Therefore, thinning, done in an intelligent manner, is practically a necessity.

Because of the susceptibility of the peach to frost, every precaution should be taken to insure all of the air drainage possible. It is well, then, to take this important matter into consideration when selecting the site for new plantings.

Soil management, whatever the system followed may be, should be such that there is sufficient available moisture in the soil at fruit-formation time. The soil should be naturally well drained, as many varieties, with varying intensity, are susceptible to "wet feet" or a water-logging of the roots.

*With additional material from talk given by Dr. F. P. Cullinan of the U. S. D. A., before the New York State Horticultural Society.

TEST YOURSELF

1. Do the terms self-sterile and self-unfruitful have the same meaning?
2. What is the difference between cutting-back and thinning-out?
3. Where are the fruit buds of the apple borne?
4. What variety is most susceptible to apple measles?
5. How will the red color of the fruit be affected by turning a cultivated orchard into sod?
6. What is the parentage of Duke cherries?

(Answers on page 29)

"BLACK LEAF 40" IS ECONOMICAL

50 POUND DRUM Makes

4000 gallons of spray
(1 pint to 100 gallons of water)

5000 gallons of spray
(¾ pint to 100 gallons of water)

6000 gallons of spray
(⅔ pint to 100 gallons of water)

8000 gallons of spray
(½ pint to 100 gallons of water)

See Your Spray Material Dealer

Insist on **ORIGINAL FACTORY-SEALED CONTAINERS** *for full strength*

THE spray protection you provide to a large extent determines the quantity and quality of your fruit. If blossom time promises are to be fulfilled in profits, you must guard against attacks by Aphis, Red-Bug, Leaf-Hopper, insects which may damage foliage and dwarf or gnarl fruit. "Black Leaf 40" used alone or with other standard sprays kills these pests—*by contact and by fumes.*

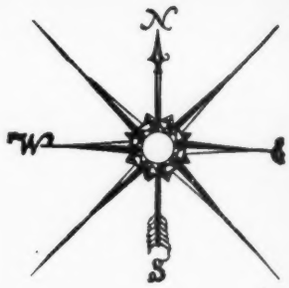
ADD "BLACK LEAF 40" TO CODLING MOTH SPRAYS—"Black Leaf 40" is usable with and fortifies stomach poison or "summer-oil" codling moth sprays. Stomach poisons kill the worms after they eat. "Summer-oil" kills the eggs. "Black Leaf 40" kills mature eggs and young worms, and if lime is added, it kills adult moths. For most effective killing action fortify your codling moth sprays with "Black Leaf 40".

"BLACK LEAF 40" IS SAFE TO USE—Of vegetable origin—is not caustic—does not "burn" man, horses, trees or crops. Does not injure foliage. It is concentrated, effective, easy to mix and to apply. "Black Leaf 40" is volatile and "fumes off" (evaporates) from the foliage and fruit. "Black Leaf 40" is sold by spray material dealers everywhere.

3647

STATE NEWS

FROM NEAR AND FAR



INDIANA—There was little evidence of living peach buds anywhere in the state, except a few in the Evansville area, according to a survey made the first part of March. Most growers planned to wait until determining the full extent of damage before pruning the peach trees. Early March indications pointed toward the probable fact that a number of trees are fatally injured.

Most areas of the state were well supplied with apples in storage the middle of March. Golden Delicious and Jonathan were still in good condition on southern Indiana markets.

Several growers were applying dormant oil sprays to apples during March, attempting to make a near clean-up of San Jose scale, since it was already on the run as the result of high winter mortality. The observations and reports available early in March indicated that there was little or no winter injury to apple trees.

Arrangements were recently made to divide the state into two competing sections (divided just south of Indianapolis) on most of the apple classes at the state fair. It is hoped that more exhibits will be brought from the northern sections to make the show larger. It has been difficult for northern Indiana growers to compete favorably at state fair time on color and size.

We hope to have the Annual Report ready for distribution soon.—EVERETT WRIGHT, Sec'y-Treas., Lafayette.

NORTH DAKOTA—If your apple and plum trees are making poor growth and bloom freely without setting fruit, despite the fact that there are plenty of varieties for pollination, perhaps the difficulty may be a lack of available nitrogen. It is suggested that one to five pounds of nitrate of soda or ammonium sulphate, applied and worked in under the outer branches of each tree as soon as the ground is thawed out, will help overcome this difficulty.

A vigorous, unproductive grapevine may be grafted over to a desirable variety by using the ordinary cleft graft. If the graft is inserted at ground level in the spring no wax is necessary. The scion and stock may be covered with earth to prevent drying out.

The East Malling Bureau of Fruit Production, after an exhaustive study of why strawberry varieties run out, concludes that virus disease is the principal reason. This is in line with what we know with respect to other kinds of plants.

According to Upshall and Van Haarlem of Ontario, Canada, exceedingly heavy pruning on Concord grape vines reduced the yield and the percentage of sugar and increased the amount of acid in the fruit.

"The Picking, Handling and Refrigeration of Raspberries and Strawberries" is the subject of Bulletin 318 of the Minnesota Agricultural Experiment Station.—A. F. YEAGER, Sec'y, Fargo.

NEW JERSEY—Measures of interest to fruit growers are being considered by the New Jersey State Legislature. One of the bills, which was introduced by Senator Robert G. Hendrickson of Gloucester County, has to do with gymnosporangium juniper-virginiannae, which is commonly known as "cedar rust" and blights apple trees. The bill would permit the State Department of Agriculture to remove any red cedar trees within a mile, as the crow flies, of an apple orchard.

Another measure, also being sponsored by Senator Hendrickson, would allow under a State Game Commission license, killing of deer destroying crops, fruit trees, etc., excepting does and those not having horns with at least one well defined off-shoot extending from the main branch.

PENNSYLVANIA—What may be a new high in the amount of mouse and rabbit injury to fruit trees in commercial orchards appears to be imminent as a result of the long and deep covering of snow in much of the state. The rodents, desperate because of the lack of food, have severely injured young peach trees and certain ornamentals which usually are not attacked. Snow drifts piled high about the trunks have rendered ineffective all too frequently the usual mechanical protectors, for the rabbits were enabled to work above the guards, often in the crotches and along the primary scaffold limbs. As new snows fell and then as the accumulation melted, the extreme limits of the girdling have been considerably increased. Even in orchards where prunings have been dropped, and where hay has been spread, the frequent snows and drifts have nullified some of these protective efforts.

About all that can be done for such injury is to trim the splintered edges of such girdles, then apply bush grafting wax as soon as possible. Bridge grafting may be required on trees worth this expense and labor. Younger trees, up to a few years of age, which are severely girdled some distance above the ground line, may be cut off below the girdle, with the hope of securing new shoots from buds on the scion. Similar age trees which have been badly girdled about the crown may require more effort than they justify in attempting to save them. In such an event, it is often cheaper and simpler and far more satisfactory in the end to replant.

In spite of still more snow on a countryside already plentifully supplied with it, the Lancaster County Fruit Growers Society staged a successful all-day meeting at Lancaster on February 20. Speakers on the program were D. M. James, Bureau of Markets, Harrisburg; Jack Klein, Philadelphia, commission merchant; Peter R. Boltz, Lebanon fruit grower; J. O. Pepper and R. H. Sudds, State College. A luncheon based on Lancaster County farm products was served to the members during their noon recess. President Elmer Snyder and the balance of the previous year's officers were re-elected.

Some damage to fruit buds, especially on peaches, has been reported from various districts. However, as early reports are quite likely to be unduly pessimistic, no worth while conclusions or forecasts can be drawn as yet.

Fruit growers of Berks, Lehigh, Erie and Lancaster counties have protested the degree and extent of the misbranding of apples as practiced in Pennsylvania. This is not to infer that orchardists of the Keystone state are

more prone to misbrand their packages than those located elsewhere, but rather it should be construed as a healthy sign that this undesirable situation will be corrected right at its fountainhead. Just enough dishonest packing has been done to make the more scrupulous growers properly resentful.

The Lancaster County Quality Apple Club, whose object is "to stimulate growing apples of higher quality and increase consumption of home grown fruit," has been launched in Lancaster County. A set of rules has been drawn up. The awards will be made by a committee on the basis of yield, disease and insect control, exhibition and records kept.—R. H. SUDDS, Sec'y, State College.

MINNESOTA—During the past winter fruit trees and berry bushes in Minnesota were exposed to record-breaking low temperatures both in duration and intensity. One grower in northern Minnesota reports a temperature of 44 below zero in his orchard. February, with an average temperature of zero, was the coldest February since 1819, according to weather bureau records. Fortunately the extreme temperatures were accompanied by heavy snow fall, the heaviest for any winter since 1919-1920. At the time this column was written it was too early to determine what damage, if any, has been done by the extreme cold.

The fruit list committee, appointed annually by the Minnesota State Horticultural Society to recommend varieties suitable for planting, made no major changes in their recommendations for 1936. The Kaga plum was added to the list because it is useful as a pollinator for other hybrid varieties and because it is desirable for cooking. All the large hybrid plums require pollinators and while the Kaga is not large, it has excellent cooking qualities and many commercial growers in Minnesota consider it one of their best varieties. The committee also recommended that Red Duchess be planted rather than the ordinary form of Duchess. For the purpose of this report, the state is divided into six different districts and recommendations are made for each of these districts. The complete report was printed in the February issue of the *Minnesota Horticulturist*.—J. D. WINTER, Sec'y, Minn. Fruit Growers Ass'n., St. Paul.

VERMONT—Highlights of the Vermont State Horticultural Society winter meeting were a move for standardization of apple grades by state law; starting of a campaign for membership in the New York and New England Apple Institute; a talk on varieties of apples by Prof. R. A. VanMeter of Massachusetts; a discussion of the care of orchards by M. B. Cummings of Burlington; a fruit tree pruning demonstration by E. W. Jenkins of the Vermont Experiment Station; a paper on the need of better marketing of apples by Julian Dimock of East Corinth; a short talk on the apple institute by S. L. Lane of Poughkeepsie, N.Y. Following Lane's talk the growers promised to support morally (and financially as far as possible) the New York and New England Apple Institute.

A committee consisting of Sherman Allen of Fair Haven, George E. Milne of Barre and Julian Dimock of East Corinth was chosen for the apple institute work, also a committee consisting of E. H. Packard of the Farm Bureau and J. E. Carrigan of the extension service, was chosen to confer with Commissioner E. H. Jones on apple grading.

The Vermont Apple Growers' Conference will be held April 9 and 10 at Rutland, Vt. A program of speaking and demonstration will cover most of the time of two days, including the banquet on the evening of the 6th. Men prominent in horticultural affairs, in research, in teaching and in practical work will be on the program. This meeting is held under the joint auspices of the Vermont State Horticultural Society, the Agricultural Extension Serv-

"NOBS"
will give this grip on unimproved roads
NOBS give FORWARD TRACTION
NOBS give BACKWARD TRACTION
NOBS give SIDE GRIP
High, tapering NOBS are scientifically spaced for self-cleaning—provide positive grip in all directions at all times.
PROVED ECONOMY FEATURES
Famous TEMPERED RUBBER tread—developed exclusively by "U. S."—is much tougher, wears longer.
SAFETY BONDING insulates cords with rubber—reduces internal friction—makes Nobbies more durable.
Nobbies have been an all-road favorite for over 25 years. The nearest U. S. Dealer will be glad to demonstrate. See him also for prices. United States Rubber Products, Inc., 1790 Broadway, New York City.
United States Rubber Company
U.S. NOBBY TRACTION
FOR CARS AND TRUCKS

Camera!

Officers of the Indiana Society for 1936 brave cold weather for a moment before the American Fruit Grower camera. Left to right, Everett Wright, Lafayette, secretary; M. S. Troth, Orleans, vice-president and Homer J. Coffing, Covington, president.

Dr. L. M. Massed, left, head of the Plant Pathology Department at Cornell chats with Dr. P. J. Chapman, entomologist at the New York Agricultural Experiment Station, while attending the New York meeting in Rochester

C. W. Ellenwood, left, of the Ohio Station, and W. J. Welday, 1935 president of the Ohio Society posed for the above photograph with Donald Comin of the Horticulture Department of the Ohio Station at the Ohio meeting

ice, Vermont State Department of Agriculture, the State Farm Bureau, the Tri-County Apple Growers Association and the Windham County Fruit Growers' Association.—M. B. CUMMINGS, Burlington, and WILLIAM J. ANDERSON, Shoreham.

WISCONSIN—The fruit grower and the beekeeper must work hand in hand. The value of bees as pollinizers for fruit has been definitely established. Many orchardists are planning to become apiarists in order to be assured of bees during the blooming period. When the weather is cold and cloudy with only a few hours of warm sunshine during the blooming period, an ample supply of bees may greatly increase profits.

The small fruit grower has in the past found sufficient bees in the neighborhood to provide proper pollination. There is, however, increasing complaint by beekeepers that there is danger of poisoning their bees during spraying operations. In fact, a few beekeepers have told me that they are seriously considering moving their bees away from the orchards. If this happens our orchards will suffer.

To co-operate with the beekeeper, therefore, orchardists should never spray with an arsenical poison when any of the trees are in bloom. If it is necessary to spray with a fungicide, this should be done on cool, cloudy days or in the evening when the bees are not flying. One beekeeper complained last spring that his colonies were seriously depleted because an orchardist sprayed with lime-sulphur during full bloom. The spray, hitting the bees under high pressure, killed them by the thousands.

During the hot, dry summer months beekeepers should provide bees with water. There is danger of them getting poisoned by taking up liquid spray from the leaves in their search for water.—H. J. RAHMLOW, Sec'y, Madison.

SOUTH DAKOTA—The 52nd annual meeting of the South Dakota State Horticultural Society was recently held at Aberdeen, with an attendance of slightly over 100. Storms and sub-zero weather discouraged the attendance of many who usually are present at these meetings. The principal out-of-state speaker was Dr. A. F. Yeager of the North Dakota station. In addition to his interesting talk on "How Things are Inherited," he gave us the result of some special investigations he had conducted concerning the spread of tree roots. An elm tree, 35 feet in height, was found to have all of its roots in four feet of depth, but with a rather surprising spread of 65 feet each way. The roots of the apple were found to penetrate to a depth of 10 feet, although 95 per cent of the roots were found in the first four feet of depth. The green ash roots were all found in the first five feet of soil. Dr. Yeager believes that the roots of most trees will go down, if there is anything for them to go down for, but in dry years, when the sub-soil moisture is exhausted and the tree is compelled to depend on the scanty moisture provided by rainfall, they stay close to the surface.

John S. Robertson of Hot Springs was elected to a five-year term on the executive board and also honored by being made an honorary life member of the society. The following officers were all re-elected: president, F. X. Wallner, Sioux Falls; vice-president, Geo. W. Gurney, Yankton; treasurer, H. N. Dybvig, Colton; librarian, Chas. McCaffree, Canova. —W. A. SIMMONS, Sec'y, Sioux Falls.

RHODE ISLAND—Control of apple scab is one of the most important problems of the Rhode Island fruit grower. Experiments in the Hudson River Valley have pointed out some of the difficulties of control. One of these, the uncertainty of infection from year to year, is well brought out by a record of scabby fruit on unsprayed McIntosh trees over

(Continued on page 27)

Notes on Nut Culture in Illinois

THE names of three men stand out in the early history of nut culture in Illinois. These men, now deceased, were keenly interested in the development of a new industry yielding either pleasure or profit or both. Both E. A. Riehl of Alton and George Endicott of Villa Ridge originated chestnut varieties of superior quality and grew them on a commercial scale. Their chestnut orchards have been profitable for over 25 years. Mr. Riehl also did pioneer work in propagation, especially with grafting waxes. Benjamin Buckman of Farmingdale was an amateur horticulturist who tested out hundreds of kinds and varieties of fruits, including nuts, and secured much valuable information as to their adaptation to conditions in Illinois. He showed, for instance, that it was in general unwise to attempt to grow the varieties of Persian walnut known at that time.

Some of the more important northern nuts, including the black walnut, chestnut, pecan, hickory, hickory hybrids and hazel are native to the state. There are no large commercial orchards of the named varieties of these nuts excepting those of chestnuts mentioned above and a younger chestnut planting owned by the Whitford family at Farina. Chestnut blight has appeared in Illinois and careful precautions are imperative if the chestnut is to survive.

There are extensive and valuable groves of seedling trees, especially pecans, in southern, south central and southwestern Illinois. For example, the crop of native pecans from Gallatin County alone is valued at many thousands of dollars annually. Selections from among these seedlings won practically all the prizes offered for the most promising northern pecans by the Northern Nut Growers' Association in 1934. Several good hicans have also originated in Illinois. Some of the named varieties of northern pecans and hicans may be grown in different sections of Illinois if one is certain that they will mature their nuts in the latitude under consideration.

Black walnuts grow in most sections of the state and superior seedlings have been found which have also won prizes in association contests. There is an especially promising future for this nut because its quality is well known and the soil and climate of Illinois are adapted to its culture. Probably better varieties will be available within a few years as a result of both the discovery of superior seedlings and the practice of the more precise methods of plant breeding, but several growers have already planted some of the present standard varieties, especially in southern and western Illinois. A number of the members of the association located in widely different sections of the state have established experimental orchards of most of the nut varieties of potential value.

Several methods are being tried out in the establishment of nut orchards. In some cases trees of named varieties are being set in permanent form, in other cases nuts are planted and the seedlings budded and grafted with promising varieties, and in still others, seedling trees, some of considerable size, are being top-worked.

The different hickory species are well distributed over Illinois and several promising seedlings have been found, worthy of more general planting. Some attention is being given to the use of better cultural methods, including fertilizer applications, to bring the trees into earlier and more productive bearing.

The American hazel grows wild throughout the state. The size and quality of the nuts vary greatly. There is an excellent opportunity for someone to discover better individual seedlings than are now generally grown.

The European filbert may be grown with a fair degree of success in both the southern and northern sections of Illinois. Extremes of weather conditions during the winter and early spring months in central Illinois may result in the killing of either the catkins or the female flowers, with the loss of the crop.

While commercial plantings of nut trees in the state are still somewhat speculative, there is a distinct place for a few nut trees on nearly every farm or even in town.

The Illinois College of Agriculture and the Illinois Natural History Survey are keenly interested in advancing the progress of nut culture in the state. Assistance has been given to those interested, through the co-operation of the county farm bureaus, especially in demonstrations of the new methods of budding and grafting, in about one-third of the counties throughout the state. Interest in this phase of the work is steadily increasing.

A project in nut culture has been established at the Illinois Experiment Station. Kinds and varieties are on trial in extensive tests to determine their value for the state. An exhibit of nut varieties grown in Illinois was shown at the Horticultural Field Laboratory during the annual farm and home week in January.

—A. S. COLBY, State Vice-president for Illinois of Northern Nut Growers' Association, University of Illinois, Urbana.

TENDING "MOUNTAIN" ORCHARD ON 2 GALLONS DISTILLATE AN HOUR!

WITH balanced power and traction, this "Caterpillar" Twenty-Two Tractor is pulling a 6½-foot cover-crop disk up steep-pitched slopes that measure 55% to 80%! Whether the engine points up-hill or down, the "Caterpillar" Tractor's advanced, double-pump pressure lubrication system functions dependably. Ample weight in the proper place keeps the "Caterpillar" Tractor's broad tracks on the ground — gripping surely and providing stability and safety — even on the stiffest up-grade pulls. This California fruit grower writes that his "Caterpillar" Twenty-Two Tractor does his work on only 2 gallons of low-cost distillate per hour! Such heavy jobs declare the "Caterpillar" Tractor's ability to cultivate to the highest standards — to handle the power take-off sprayer anywhere, any time — to give extra years of low-cost performance. "Caterpillar" Twenty-Two Tractors are at work in every orchard section of the world! Caterpillar Tractor Co., Peoria, Illinois.

Request a folder on the new Streamlined Orchard Model "Caterpillar" Twenty-Two Tractor. There's no obligation, of course.

CATERPILLAR

REG. U. S. PAT. OFF.

AMERICAN POMOLOGY

A Page Conducted in the Interests of the American Pomological Society

OFFICERS FOR 1936

President: B. S. Pickett, Ames, Iowa.
Vice President: Laurenz Greene, Lafayette, Ind.
Vice President: W. S. Blair, Kentville, Nova Scotia.
Secretary: H. L. Lantz, Ames, Iowa.
Associate Secretary: H. J. Rahmlow, Madison, Wis.
Treasurer: H. C. C. Miles, Milford, Conn.

BOARD OF MANAGERS

C. L. Burkholder, Lafayette, Ind.
J. H. Gourley, Wooster, Ohio.
J. C. Blair, Urbana, Ill.

EXECUTIVE COMMITTEE

The Officers ex-officio and
W. H. Alderman, St. Paul, Minn.
R. D. Anthony, State College, Pa.
W. S. Brown, Corvallis, Ore.

EXECUTIVE COMMITTEE

C. E. Dutton, Milford Center, Ohio.
N. E. Hansen, Brookings, S.D.
Wesley Hawley, Ludington, Mich.
E. Stuart Hubbard, Poughkeepsie, N. Y.
W. S. Perrine, Centralia, Ill.
H. L. Price, Blacksburg, Va.
Robert Simpson, Vincennes, Ind.

EXECUTIVE COMMITTEE

Paul Stark, Louisiana, Mo.
T. J. Talbert, Columbia, Mo.
C. C. Taylor, Albion, Mich.
W. P. Tufts, Davis, Calif.
H. B. Tukey, Geneva, N.Y.
R. A. Van Meter, Amherst, Mass.
And one representative from each affiliated State Society.

Edited by H. L. LANTZ, Secretary

NATIONAL CODLING MOTH CONFERENCE

ENTOMOLOGISTS from practically every fruit growing section of the United States met at Iowa State College, Ames, Iowa, March 3 and 4, to discuss the past, present and future status of the codling moth research program. Specialists from the U.S.D.A. and from the various agricultural experiment stations participated in the program. The attendance totaled about 75.

The codling moth, as every apple grower knows, collects a terrific toll from fruit growers every year. Allowed to multiply unmolested, this insect would likely destroy the commercial apple industry of the United States and Canada within a few years. This industry produces fruit valued at well over $100,000,000 per year.

The codling moth is recognized as the most serious pest that orchardists must combat. In spite of all the good work done to provide efficient control, the pest still exacts its heavy toll in losses to fruit growers. Because of continued difficulty of controlling the pest, and because of the new emphasis induced by the residue problem, much new work has been done in searching for new methods of control and for new and more effective insecticides.

Dr. B. A. Porter, Bureau of Entomology and Plant Quarantine, U.S.D.A., Washington, D. C., was chairman of the conference. Much of the subject matter throughout the conference dealt with (1) a presentation of the results of recent experiments in codling moth control, and (2) a substantiation of the standard control measures. Sanitation was stressed by practically all workers. The value of screening packing houses to prevent moth emergence to the orchard, treating boxes to kill over-wintering larvae, and scraping and banding were shown to be valuable supplementary measures in the fight to control the codling moth. Several workers reported that by banding scaffold branches as well as the trunk, the catch of larvae was 50 per cent greater than where only the trunk was banded.

Insecticides of many kinds were reported upon which showed widely varying results. Some new insecticides showed promise so far as control of the moth was concerned, but injury to the trees was noted in several cases. Extensive experiments indicate that lead arsenate is still the leader among insecticides, although under certain conditions calcium arsenate was shown to be safe and efficient.

Baits of various kinds also received considerable attention, as did also light traps.

A modification of the orthodox all-season schedule of cover sprays was discussed by E. J. Newcomer of the U.S.D.A., on work done by the Washington State Experiment Station, and by G. E. Marshall of Indiana. These men reported that by spacing sprays a week apart up to July 2, so that the fruit was kept thoroughly covered by spray material throughout the early season when fruit size was increasing very rapidly, it was possible to "smack" the first brood of codling moth, so that it was not necessary to spray the trees during the balance of the growing season. The success of this schedule, however, was premised upon the necessity of doing a very thorough job of spraying so that few or no worms escaped. In other words, there should be few moths left for second generation infestation of worms.

The painstaking work being done by entomologists throughout the country should spell doom to the fruit growers' public enemy No. 1, the Codling Moth, and conferences like that held at Ames, Iowa, in March will doubtless hasten the day when more efficient control measures will be available to fruit growers.

Spray Recommendations

At the conclusion of the conference, spray recommendations were discussed for the eastern, midwestern and western fruit sections. In all these regions the recommendations made by various state agencies for apples are essentially the same as those of a year ago, except that greater emphasis is being placed on the early applications against the first brood of worms. The need was stressed for a more general appreciation of doing a more thorough job. It was stated that the users of large volume per minute sprayers should guard particularly against undue haste and that regardless of the type of machine used, some of the spraying should be done by an operator on the ground to insure coverage of the lower and inner parts of the tree.

Hardiness Again to the Front

Winter weather of unusual severity descended upon the Midwest and remained from January 18 to February 23. Reports are coming in to indicate a short crop of peaches throughout the peach sections of this area. Apple trees show some damage, but no widespread losses of trees are indicated. In the Upper Mississippi Valley the long period of sub-zero weather was alarming, but with a deep snow covering and relatively high humidity, severe losses due to winter injury are not yet apparent. Tree cracking has occurred in places. Prof. F. H. Beach, secretary of the Ohio State Horticultural Society, in a news letter dated February 25 makes the following timely observation:

"Considerable trunk splitting and crotch injury has occurred. Stayman and Baldwin apples have been especially susceptible. Some trees will need bolting clear through the trunk, together with top bracing. Many trees will need attention to trunk splits and crotch injury. A good method of repair is to tack down the bark with large bill poster tacks or small roofing nails placed in the bark about two inches apart on each side of the crack to prevent bark rolling away from the sapwood. The crack can then be filled with a good asphalt wound dressing or grafting wax. The asphalt wound dressings are very satisfactory for this purpose. Crotch injuries can be trimmed out and covered in the same way. Some bridge grafting may be needed. Sometimes where the bark is cracked, the trunk may be wrapped tightly with heavy cord, but tacking down is preferred. Tacking should be done as promptly as possible before bark has loosened."

The Pacific Northwest is still concerned about the possibility of the damage due to the late October freeze of 1935, when temperatures dropped to much below freezing and remained there for a week. This freeze caught the trees in a succulent condition and with considerable fruit still remaining on the trees.

In three years severe cold has visited practically all fruit sections of the United States. In 1933-34 the northeastern states lost millions of trees, and the past winter has been severe enough to cause losses in the Midwest and Northwest fruit sections. The old problem of hardiness is again to the front. Orchardists are searching for new hardy varieties to replace old varieties, or for new methods of growing trees in order to protect them from winter damage. Hardy understocks are receiving a great deal of attention, and many orchards in the near future are likely to be doubleworked.

A timely piece of advice in regard to the selection of varieties which should be planted is found in a column of the February issue of *Wisconsin Horticulture*, entitled, "Beware of Apple Varieties."

"The other day a fruit grower made this statement in the office of the Wisconsin Horticultural Society: 'I wish I could look 15 years ahead and see what varieties of apples would be most popular at that time. Right now I find that McIntosh is very popular and would make me money if I

had them. What shall I plant this year that will be popular in the future?'

"Our answer to this was that if he had looked around 15 years ago and picked out the apple having the best quality regardless of whether it was popular then or not, he probably would have planted the McIntosh. Instead, he planted what was well known on the market, regardless of quality. Today these varieties have been superseded by better quality kinds and he is out of luck.

"We predict that better quality varieties are going to depress the price on the market of the poorer varieties more and more. As the planting of such varieties as McIntosh increases as it is now doing, the older, poor quality varieties will be in the same position as the automobile of 10 years ago. Who wants it?

"And so beware of the varieties you plant. Plant only those of good quality because there are too many of the other kind planted already."

Marketing

Have you noticed that "marketing" of fruits was a leading topic for discussion at a number of the state horticultural society meetings? For at least three years fruit growers have been right up against a situation that has all but bankrupted the apple industry. The depression, diminishing exports, spray residues, no particular effort to advertise, early season markets cluttered with low grade fruits, and there you have a depressing picture.

Such a situation calls for action on many fronts, and such action as is needed you will find discussed in the reports of the various state horticultural societies and in the Proceedings of the American Pomological Society. Join your own state horticultural society, and also join the American Pomological Society, whose function is to serve the fruit growers' interests wherever large national issues are involved. A number of state horticultural societies have affiliated with the A.P.S., and by working together in a unified program, real accomplishment will result. Here ideas crystallize into definite and decisive action. The A.P.S. has successfully stood by the large interests of the fruit growers in asking for residue tolerances which could be met, and in "daddying" the National Apple Institute.

This question of low-grade apples which are being fed to the markets during the early part of the market season, is ripe for discussion and possible action. It was observed last fall that throughout the Middle West our retail stores were literally loaded with *cheap,* low grade apples. This condition existed until nearly Thanksgiving time.

Memberships

It is still time to become a paid-up member of the A.P.S. for 1936. The membership fee is $1.25 per year. This fee includes a year's subscription to AMERICAN FRUIT GROWER, and will also bring you a copy of the best A.P.S. Proceedings published in recent years. AMERICAN FRUIT GROWER brings society news to every member, as this magazine is the official news organ of the society for 1936. Send your remittance for membership to H. L. Lantz, secretary, American Pomological Society, Ames, Iowa.

Cedar Rust Returns

Recent findings of Dr. V. H. Young, head of the Department of Plant Pathology of the University of Arkansas, bring to light the possibility of recurrence of cedar rust. In Benton and Washington counties (Ark.) cedar trees were removed about 20 years ago. Another outbreak of cedar rust trouble is now facing orchardists in this section because of the growth of young cedar trees from seed which was in the soil when the old trees were removed.

"Little Leaf" Control

ZINC sulphate injected into the trunks of cherry trees at the base and just under the ground line at The Dalles the last two seasons resulted in almost complete recovery of sweet cherry trees affected with a "little leaf" condition or "rosette." This tree malady is characterized by yellowed foliage on the cherry at The Dalles and is often accompanied by clusters of small leaves one season and sometimes complete devitalization of the tree or its death within a year or two.

The suggestions for this treatment are taken from reports of work by Dr. W. H. Chandler of the California Experiment Station, on orchard trees other than the cherry. The work at The Dalles was done by County Agent Lawrence and O. T. McWhorter, extension horticulturist of Oregon.

Demonstrations of the use of zinc sulphate will be continued at The Dalles on a more extensive scale, and will include spraying with zinc sulphate solutions. The treatment used involved boring three-eighths inch holes one and one-half inches deep in the tree trunks just under the ground line, and four inches apart around the tree. These openings are filled with zinc sulphate to within about one-half inch of the outside and then the openings are plugged with grafting wax.

Cherry trees thus treated at The Dalles have been those affected with a little leaf condition which owners declared would cause the death of the trees within a year or so.

HAIL INSURANCE *for* FRUIT CROPS

You spray, you dust, you fertilize, you prune; yet all this work and expense can be wiped out with one hail storm. *Protect* your investment with Hail Insurance in a reliable company. No community is safe against hail. Let one of the Old-Line companies named below—with their risks distributed over the whole country—carry *your* risk for you.

Apples ruined by hail in the Byrd orchard—Virginia.

The kind of damage that hail does. These apples a total loss.

Ætna Insurance Company
World Fire & Marine Insurance Company
Piedmont Fire Insurance Company

Insurance Company of North America
Alliance Insurance Company
Philadelphia Fire & Marine Insurance Company
National Security Fire Insurance Company
Central Fire Insurance Company

Springfield Fire and Marine Insurance Company
Sentinel Fire Insurance Company
Michigan Fire & Marine Insurance Company
New England Fire Insurance Company

SEE LOCAL AGENT IN YOUR TOWN OR ADDRESS THE COMPANY

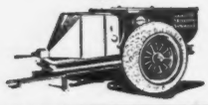
HAIL DEPARTMENT

209 West Jackson Blvd. CHICAGO, ILL.

OSPRAYMO Sprayers

Give You at Lowest Cost What You Want Most—Dependable Pressure Uniformly Maintained

IF you raise Potatoes or Truck Crops or have an Orchard, it will pay you to send for our Catalog. It describes a complete line of Traction and Power Sprayers, including tractor and truck-operated models. If interested write for Free Catalog today.



Field Force Pump Co.
Dept. A, Elmira, N.Y.
Makers of Sprayers for More Than 54 Years

Uniform High Pressure Guaranteed

Putting off buying a good spray gun is like stealing your own time—Save time with a Hamilton Gun!
Will Hamilton

W. L. HAMILTON & CO.
BANGOR, MICHIGAN
Six Models. Better guns for less money.

BAND YOUR APPLE TREES
KILL CODLING MOTH
Our experience has taught us how to chemically treat *TREE BANDS* that are *guaranteed* to kill the worms.
Write for Circulars and Prices
EDWIN H. HOUSE **Saugatuck, Mich.**
Remember, we pay the freight.

FLAME GUN *quickly—easily* DESTROYS WEEDS and BRUSH!

Hauck Kerosene Flame Gun—2000°F. controlled heat—destroys weeds (seeds and all), brush, poison ivy, insect pests, etc. Hundred and one uses. Keeps walks, roads, driveways, fences, irrigation ditches, orchards, etc., free from objectionable growth. Inexpensive—Safe—Easy to operate. Does work of 4 men. 10 days Free Trial. Write today for free booklet and special introductory price.
Hauck Mfg. Co., 161 Tenth St., Brooklyn, N.Y.
WRITE FOR FREE BOOKLET

NO. 145 ANGLE SPRAY ROD
for Better Fruit Coverage. It reaches where spray gun cannot. Tenth successful year in ten thousand Orchards—from Maine to California. Repair parts or trade-in allowance for older models.
Write for circular. Model E—$8.00 postpaid.
MESSMER BRASS COMPANY
2706 South Seventh -:- St. Louis, Mo.

DON'T SPRAY FRUIT TREES
unless your sprayer is equipped with a
●TODD PERFECTION HOSE SWIVEL●
Hose always straight, cannot kink. Ease in operation of spray gun, will pay for swivel the first day's use. Fits any spray gun or broom. Will not leak under highest pressure. *Postpaid* **$1.00**
A. B. TODD (Dept. A) Vermilion, Ohio

Learn how to save time and labor plowing, seeding, cultivating, spraying, field mowing, etc. with the All-Purpose
BOLENS Tractors
Eight powerful models—22 attachments all interchangeable—simple tool control, power turn, high plant clearance—boy or girl can operate—thousands in use. Write for catalog.
USE THIS COUPON

GILSON BOLENS MFG. CO., Port Washington, Wis. (1)
1464 Park St.
Name .....
Address .....

LIMES FOR THE NATION

(Continued from page 12)

through a tavern, confectionery, drug, fruit or grocery store.

In most large markets, houses which pack limes utilize two agencies of distribution. First, they develop the local market by employing men to sell directly to the tavern, confectionery, drug, fruit and grocery store. However, some independent peddlers also sell limes. Second, lime concerns work the sectional areas by soliciting the accounts of wholesale fruit houses in their area. Chicago dealers sell to wholesale houses as far east as Philadelphia, Buffalo and Rochester, as far west as Cheyenne, as far south as St. Louis, and as far north as Winnipeg, Canada.

Territorially, the United States is divided into five major lime markets, New York, Chicago, Florida, Texas and California. The borders of the several markets fluctuate considerably. At times, New York lime packers are able to sell limes in Chicago in competition with local packers. Normally, New York uses the West Indies (Dominican) and the Florida lime; Chicago the Mexican, with some Florida and California limes; Florida raises her own limes; Texas sells her own and the Mexican; and California uses her own and the Mexican lime. In the Chicago market, high express charges prohibit wide use of California and all imported limes, except those from Mexico. From January through March, when Mexican and Florida limes are not available in sufficient quantities, Chicago sells mostly California and some Dominican limes, in spite of their higher cost.

Fortunately for the lime-consuming public, the lime dealer and the grower, on the whole supply and demand run parallel. In the hottest part of the summer, limes are most abundantly grown. Several months later a sizable crop is ready for the December increase in demand. During January, February and March the few who want limes are willing to pay a premium for the California crop, which is then being harvested.

One of the important factors in determining the cost of limes is the high import duty levied on them. Of the gross cost of imported limes to a lime dealer, about 25 per cent goes for duty. The lime grower and the United States carrier each receives about the same per cent as the government does in duty. The remaining fourth is claimed by the Mexican carrier and the United States broker. The lime packer, the wholesale outlet, the local peddler and the retailer all join together in increasing the cost to the ultimate consumer. Incidentally, it is interesting to notice that since limes can be grown in Florida at a cost of about 17 cents a box on the tree, the import duty of about five times that amount, plus the cost of bringing limes to the border, places the domestic lime grower on a very favorable footing relative to the foreign grower.

Competing drinks such as fresh orange and lemon and synthetic flavors, as well as competing markets, prevent the price of limes in any one market from rising above a reasonable figure. The public with its ever-changing fancies is readily redirected to alternate drinks. The dispenser accomplishes this by exerting more sales effort on substitute drinks when the limes cost him an abnormally high price. In the larger scheme of price determination, if the price of Mexican limes in Chicago rises above a rather fixed figure, it is profitable for New York to ship Dominican limes there. Obviously then, competition, supply and demand regulate the price of limes.

With respect to the United States as a potential lime market, probably it will be impossible to approach the magnitude reached by the lemon industry. Although limes are used extensively in some foreign countries in place of lemons, several factors will prevent a similar development here. Probably foremost is the fact that in growing, the lime is more subject to injury by frost than is the lemon. This definitely limits the areas in which limes may be grown safely. Second, lemons keep longer both before and after they have been cut. Third, the lime is not as universally handled by retail food stores and cannot be obtained as regularly in all seasons as the lemon. Fourth, limes actually cost more by volume, and often by unit, than lemons. Fifth, over a long period of time, a national advertising campaign in behalf of the lemon has made the public "lemon conscious." For these several reasons lime growing will probably always remain one of the minor citrus industries.

The repeal of the Eighteenth Amendment has stimulated sharply the sale of limes. Moreover, indications are that there will continue to be a marked absolute increase in the volume of limes sold.

New York state has seen fit to honor those growers whose packs have been found, by actual examination, to meet the grades stamped on the closed packages. Their names were placed on an honor roll and read before the Rochester and Kingston meetings of the New York society.

NOTES AND NEWS FROM THE FIELD

WHILE speaking on the codling moth situation in the East before the Indiana Horticultural Society meeting, Dr. B. F. Driggers, entomologist of the New Jersey Agricultural Experiment Station, stated that bentonite nicotine followed by oil-nicotine combination gave better results against the codling moth than bentonite nicotine followed by nicotine tannate.

L. F. Steiner, entomologist at the U. S. D. A. Laboratory at Vincennes, told growers at the Indiana meeting that lead-Bordeaux plots showed more injury than those plots sprayed with lead-lime-oil combination.

"Apples of the Delicious family are tender and must be watched carefully during the washing process." This statement was made during the talk of H. D. Simpson, prominent Indiana grower of Vincennes, before the Indiana meeting.

During a lively discussion on russeting from sprays at the Indiana meeting, C. L. Burkholder of the Department of Horticulture of Purdue University, said that some Grimes in the university orchard had not been sprayed at all, yet showed russeting, so that this injury cannot always be attributed to spray materials. During the same discussion Leslie Pierce, plant pathologist of the U. S. D. A. Laboratory at Vincennes, stated that a good portion of the russeting occurring on the outside of the tree probably results from weathering rather than from spray materials.

Washing costs at the Simpson orchard, Vincennes, Ind., amounted to two cents per bushel without heating and three cents per bushel when heat was used, according to H. D. Simpson at the Indiana meeting.

"Physical handling of fruit must receive more thought so as to remove bruised fruit from growers' packs," said Dr. J. H. Gourley, chief of the Department of Horticulture at the Ohio Agricultural Experiment Station and Ohio State University, while talking before the 69th annual meeting of the Ohio State Horticultural Society.

W. W. Ellenwood, assistant director of the Ohio Department of Agriculture, told growers at the Ohio meeting that old trees of worthless varieties are kept in the orchard for sentimental reasons only in many cases.

In the opinion of Sam Wilson of the firm of Cavalier, Culling and Wilson, Cleveland commission merchants, the bushel basket is on its way out. He told Ohio growers at their annual meeting that the basket is rapidly being replaced by the New York state type of box as it results in less bruising to the McIntosh and Stayman varieties.

Picking at the proper stage of maturity will do much to prevent the occurrence of scald in storage, according to F. H. Beach, secretary of the Ohio State Horticultural Society and Ohio State University extension horticulturist.

Fancy Fruit *brings* Fancy Prices

GROWERS who harvest the most Extra Fancy's next fall will reap the "extra profits." The income from your orchard is not determined by the quantity of fruit you grow, but rather, by how many will be Grade No. 1 and will demand a premium. Keep down the size of your cull heap by using "Magnetic Spray" Wettable Sulphur. Years of wide and successful use has proved its efficiency.

"Magnetic Spray" has been the choice of leading growers season after season, because of its unvarying uniformity and effectiveness. It is especially processed and the purest effective wettable sulphur obtainable, consisting of 98.5% pure active sulphur of uniform fineness. Try "Magnetic Spray" this year and see for yourself the lasting protection it gives against pests and fungous diseases.

"MAGNETIC" SUPER ADHESIVE DUSTING SULPHUR is 99.8% pure and free from fillers. It gives complete coverage and lasting kill as it forms a fine dense fog covering every part of the tree. When you use a dust—use "Magnetic"—and be sure.

Write for complete spraying and dusting literature

There's a N *dealer near you*

NATIONAL SULPHUR COMPANY
2709 Graybar Bldg. New York City
A Division of Stauffer Chemical Company
Chicago San Francisco Los Angeles Freeport, Texas

Write for it!
When writing for spraying and dusting literature, ask for new circular giving full information on the uses of
Pyrethrum-Sulphur Dust
Rotenone-Sulphur Dust
—a combination insecticide and fungicide.

use "MAGNETIC SPRAY" SULPHUR

NICHOLS
COPPER SULPHATE
gives best results in home mixed
BORDEAUX MIXTURE
Always uniform—99% pure!
Write for new booklet, "Bordeaux Mixture—Its Preparation and Use."
NICHOLS COPPER CO.
A Unit of the Phelps Dodge Corporation
40 WALL ST., N.Y.C. • 230 N. MICH. AVE., CHICAGO

TRIANGLE BRAND
NICHOLS COPPER CO. TRIANGLE BRAND COPPER SULPHATE (BLUE STONE) GUARANTEED 99% 450 LBS NEW YORK

SAVE MONEY

Order Now at Low Cost Your Favorite Magazines

Offer No. P-75

AMERICAN FRUIT GROWER..1 yr.
Household Magazine .....1 yr.
National Sportsman.....1 yr.
Woman's World .....1 yr.
ALL 4 ONLY **$1.00**
Value $2.00

Offer No. P-76

AMERICAN FRUIT GROWER..1 yr.
Capper's Farmer.....1 yr.
Poultry Tribune.....1 yr.
Illustrated Mechanics .....1 yr.
Hunting & Fishing .....1 yr.
ALL 5 ONLY **$1.00**
Value $2.00

Offer No. P-78

AMERICAN FRUIT GROWER..1 yr.
Woman's World.....1 yr.
Country Home.....1 yr.
McCall's Magazine .....1 yr.
ALL 4 ONLY **$1.40**
Value $2.25

Offer No. P-80

AMERICAN FRUIT GROWER..1 yr.
McCall's Magazine .....1 yr.
Pathfinder (weekly) .....1 yr.
Popular Science Monthly .....1 yr.
ALL 4 ONLY **$2.25**
Value $4.00

Offer No. P-81

AMERICAN FRUIT GROWER..1 yr.
Pictorial Review .....1 yr.
Household Magazine .....1 yr.
Woman's World .....1 yr.
Hunting & Fishing .....1 yr.
McCall's Magazine .....1 yr.
ALL 6 ONLY **$2.00**
Value $4.00

AMERICAN FRUIT GROWER for One (1) Year and Your Choice of Any Two of the Following Magazines for ONLY $1.45

Check Two

( ) McCall's Magazine .....1 yr.
( ) Pathfinder (weekly) .....1 yr.
( ) Boys' Life (boy scouts) .....1 yr.
( ) Christian Herald .....6 mo.
( ) Current Thought .....1 yr.
( ) Outdoors .....1 yr.
( ) Breeder's Gazette .....2 yrs.
( ) Etude Music Magazine .....6 mo.
( ) Household Magazine .....2 yrs.
( ) Hunting & Fishing .....1 yr.
( ) American Cookery .....6 mo.
( ) Junior Home for Mothers.....1 yr.
( ) Flower Grower .....6 mo.
( ) Market Growers Journal .....1 yr.
( ) National Sportsman .....1 yr.
( ) Country Home .....3 yrs.
( ) Parents Magazine .....6 mo.
( ) American Poultry Journal .....4 yrs.
( ) American Boy .....1 yr.
( ) Pictorial Review .....1 yr.
( ) Popular Science Monthly .....6 mo.
( ) Hunter-Trader-Trapper .....6 mo.
( ) Capper's Farmer .....2 yrs.
( ) Dog World .....6 mo.
( ) Everyday Science & Mechanics.....1 yr.
( ) Poultry Tribune .....4 yrs.

You may have AMERICAN FRUIT GROWER Three (3) Years with any Two (2) of the above magazines for only $1.75.

AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland, Ohio.

Enclosed find $..... for which please send me the magazines marked with an X.

Name .....

Postoffice .....

R.F.D..... State.....

WAR TO END WAR OF INSECTS

(Continued from page 10)

controlled by the introduction of natural enemies from Australia. Recently the citrus blackfly, which had become established in Cuba and elsewhere in tropical America, was brought under control by parasites imported from Malaya and the Netherlands East Indies.

In the case of certain deciduous fruit insects it has been possible to secure results of appreciable value in this way. The well known woolly apple aphid *(Eriosoma lanigerum* Hausm.), which is native to North America, is attacked by a small parasitic wasp *(Aphelinus mali* Hald.). In many sections of the eastern states the aphid is sufficiently well controlled by it to require no other measures. However, when the aphid spread to the Pacific Coast and the Southwest the parasite did not extend its range accordingly. As a result of the absence of this check on its increase, the aphid became a very serious pest in those sections. The parasite was colonized in Washington and Oregon several years ago and has now brought the pest under complete control. This has led to a program for its introduction into all sections of the United States where it is not known to occur.

The so-called lecanium scale *(Lecanium coryli* L.), which is of European origin, and attacks various fruit trees, is readily subject to control by parasites. This pest became established in British Columbia and elsewhere in North America many years ago. In 1928-29 the Canadian Department of Agriculture introduced *Blastothrix sericea* (Dalm.) into British Columbia from England. Within a short time the scale was so greatly reduced in numbers that it became difficult even to find specimens.

The white peach scale *(Aulacaspis pentagona* Targ.) is a serious pest in many parts of the United States. Since its establishment about 50 years ago it has spread into nearly all sections of the country. Its marked decline in many localities has been attributed in part to natural enemies, but this has not been established with certainty. However, one of the parasites, *Prospaltella berlesei* Howard, has been colonized in several European and South American countries and has given excellent results.

The San Jose scale *(Aspidiotus perniciosus* Comst.), a pest of oriental origin which was first found in California in 1870, is now a much less serious pest than was formerly the case. Observations indicate that parasites have been, in some part at least, responsible for this change. These natural enemies are not known to be present in the Pacific or Rocky Mountain states, and their colonization in those states would certainly be worth while. In this instance, however, there is no certainty of appreciable results, and only actual trial will show the value of the parasites in any particular locality.

Considerable interest has been manifested in recent years in the possibility of controlling the codling moth (*Carpocapsa pomonella* L.) by the use of parasites. Several species of these occur commonly in the eastern states, and in unsprayed orchards they are able to kill 25 to 40 per cent of the larvae. During the past two years the principal parasite, *Ascogaster quadridentatus* Wesm., has been colonized by the U.S.D.A. in all of the main apple-producing sections of the western states where it had not previously been known to occur. Forty thousand of these parasites were reared under insectary conditions during the summer of 1934 and the adult wasps forwarded by air express. Under present schedules it is possible for shipments from the New Jersey laboratory to be liberated in the orchards on the Pacific Coast within 24 hours.

The possibilities of securing any appreciable control of the codling moth by the use of parasites are not at all encouraging. Field experiments indicate that the standard spray program employed in the various sections destroys a very large portion of the parasites in the orchards. As a consequence of this it is impossible to supplement spray control with biological control. Parasite colonization can be of value only if the spray program is entirely discontinued. Experiments are under way in co-operation with several state experiment stations to determine if such a practice has commercial possibilities. Thus far, however, we have no grounds for believing that this method will in any measure replace spraying.

The importation of natural enemies of the Japanese beetle *(Popillia japonica* Newm.), which is a serious pest in apple and peach orchards in the area centering around Philadelphia, has been under way for 15 years. During this time more than one million parasites and predators, representing 22 different species, were sent to the United States from Japan, Korea, China and India. Five of the most important of these have become established. At this time it is still too early to determine the final effect th...

the parasites will have upon the beetle population. Two of them have shown up well in restricted localities. Owing to the fact that they have only a single generation each year, the increase and spread are slow.

One of the most promising problems from the point of view of biological control is the oriental fruit moth (*Grapholitha molesta* Busck). This species gained a foothold in the United States about 25 years ago, and has spread to practically all peach-growing sections in the eastern half of the United States. The native parasite, *Macrocentrus ancylivorus* Roh., which previously attacked mainly the strawberry leaf roller, readily adapted itself to the new insect. This parasite has reduced the pest to a state of minor importance in New Jersey and surrounding sections. Extensive colonization has been accomplished by the U.S.D.A., in co-operation with a number of state experiment stations, during the past five years, and the zone of effective control is being rapidly extended. In the province of Ontario, Canada, the parasite is credited with reducing the pest to a very low level. This outcome in the two sections is of particular importance in view of the present lack of effective spray or other control measures.

There are certain areas where *Macrocentrus ancylivorus* is not able to attain an effective status, and for this reason extensive importations of parasites have been made from Japan and Korea during the past three years. It will be several years, however, before the final results of these importations can be known.

Aphids are serious pests upon many kinds of fruit trees, as well as upon truck and field crops. These are attacked by a number of ladybird beetles. The most common of these beetles can be collected by the ton in certain sections of the United States, and many growers have purchased large colonies for liberation in their orchards and fields. Where the beetle is already present—and this is the case in practically all sections—there is little or nothing to be gained by releasing a further small number. Experiments of this nature have been made on a large scale in several states and in no instance have results been secured that would justify the use of the beetles as a general field practice. The only pests against which the colonization of ladybird beetles is recommended are the cottony cushion scale and mealy bugs, and these occur primarily on citrus rather than on deciduous fruit trees. It should be borne in mind also that the beetles which attack these pests are distinct from those which feed upon aphids.

The control of insect pests by the use of parasitic and predacious insects is a field of work which presents a great deal of promise. It has a particular appeal to agriculturists, not only because of the rather novel idea of pitting one insect against another, but because the initial cost is the final cost. If successful there is no further need for repeated spraying year after year. It must be borne in mind however, that many insect problems cannot be solved in this way. Certainly there should be no interruption in the use of the standard methods of chemical or mechanical control until the effectiveness of the parasites has been definitely determined. Before incurring expenditures for parasite colonies for liberation in the orchards, the growers should determine, through the state experiment station or the Bureau of Entomology and Plant Quarantine of the U.S.D.A., whether these liberations are likely to have appreciable value.

SECTIONAL CAMPAIGN

(Continued from page 11)

effort carried on simultaneously by the growers and distributors in the specific market area. Any such campaign can be successful only along the lines of organized effort. It must have the combined co-operation of individual selling.

The objective of the organization in back of this intensive campaign is

1. to actually stimulate the demand for Ohio apples.
2. to be the forerunner of a definite promotion program by the Ohio Apple Institute during the coming season when it is planned there will be a definite advertising and publicity campaign.

By this definite promotion campaign growers in this territory have initiated a means of creating consumer demand.

BUY AN ALLIS-CHALMERS ORCHARD "M"

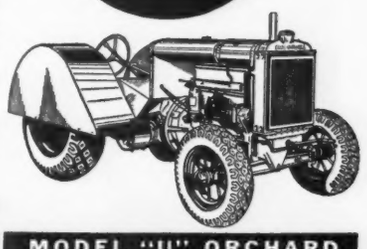
ADVANTAGE NO. 5 Less HEIGHT

..Best BALANCED Track-Type Tractor Built

ALLIS-CHALMERS MFG COMPANY
Dept. 16, Tractor Division, Milwaukee, Wis.
Gentlemen: Send FREE catalogs on items I have listed on margin.
I farm ____ acres.
Name
Town
R. F. D. ____ State

- 27 + Drawbar H. P.
- 4 Speeds Forward
- Removable Cylinder Sleeves
- Gasoline, Kerosene Distillate, Butane
- Less Height

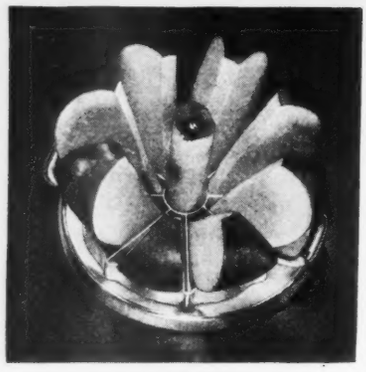
On a "value per dollar" basis, no tractor in its class can compare with the Allis-Chalmers Model "M". Wider range of speeds. Operates economically on gasoline or low grade fuels. QUALITY construction throughout. For orchard work, such obvious advantage as less height . . shorter turning radius . . and less ground pressure . . make the "M" a still greater value. Own the BEST—BUY an Allis-Chalmers. Send coupon for FREE catalog.



TRACTORS—PLOWS—TILLAGE TOOLS

ALLIS-CHALMERS
TRACTOR DIVISION · MILWAUKEE, U.S.A.

MODEL "U" ORCHARD
Full 3-plow power. Four speeds—up to 15 miles per hour. Gasoline, kerosene, distillate, butane.



NEW
Apple and Pear Cutter
The perfect fruit sampler for growers. Let your customers and buyers sample your product. The perfect purchase or gift for fruit consumers.

Beautifully and Strongly Made
Quadruple Silver Plated
Will Last a Lifetime

$2.00 postpaid

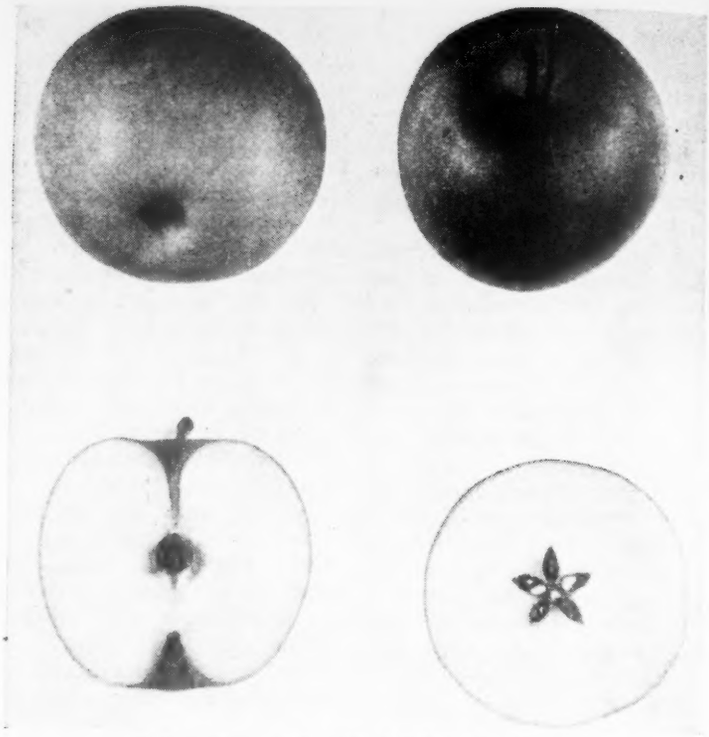
AMERICAN FRUIT GROWER
1370 Ontario St., Cleveland, O.

The NEW
KINKADE GARDEN TRACTOR
and Power Lawnmower
A Practical, Proven Power Plow & Cultivator for Gardeners, Suburbanites, Florists, Truckers, Nurserymen, Fruit Growers
Low Prices - Easy Terms
American Farm Machine Co.
1105 33rd Av. SE. Minneapolis, Minn.
Catalog Free

SUMMER CAMPS FOR CHILDREN
Camp Merry Days for boys and Camp Sandy Neck for girls, Barnstable, Mass. Swimming, rowing, hiking, treasure hunting for real Indian relics for the boys; basketball, tennis, archery, tenikeit, water sports, arts and crafts for the girls. Character building. Fresh food, expert dietitian, trained nurse. Per month, $75.00. Mrs. Constance Prowse Lovell, Director.

CAMP ZAKELO HARRISON, MAINE
Founded 1902
Boys 5-19. Four divisions. $125,000 equipment. Cultivated Teachers, College Athletes, Medical Staff. Tutoring. Elective Cultural and Athletic Activities. Trip Camp. Pre and Post Seasons. Discriminating Clientele.
Address 15 Parkman Street, Brookline, Massachusetts.

one of the few famous Hotels in America
BELLEVUE STRATFORD
Philadelphia
Claude H. Bennett
General Manager
Rates $3.50 up
BOOKING OFFICES:
Pittsburgh
Standard Life Building, Court 1488
New York
11 West 42nd St., Longacre 5-4500



Various Views of the "Hardy" Haralson Apple.

CLAIMS "HARDY" HONORS AFTER TESTS DURING COLDEST WINTER IN 50 YEARS

AN APPLE, uninjured by the coldest winter in 50 years during tests in northern Vermont and Maine, is being heralded as the answer to the demands of eastern fruit growers for the "hardiest of hardy apples." Named the Haralson, it originated in Minnesota. According to Prof. M. B. Cummings, head of the Department of Horticulture of the University of Vermont, the Haralson apple surpasses the McIntosh in winter tolerance. It is now being used at the Maine Experiment Station in breeding hardier varieties for the state.

The Haralson apple has come into commercial production in Minnesota. The tree has proved to be exceptionally productive, bears early and produces fine-colored market fruit. In 1935 a six-year-old tree bore 579 apples. Prof. W. H. Alderman of the University of Minnesota thinks it is destined to become the leading apple in his state. It has fruited well in Vermont at the experiment station and bore a heavy crop in 1934 following the severest winter on record. It cropped again in 1935, being loaded with apples.

Haralson came from an open-pollinated Malinda seed produced in the orchard of Seth Kenney at Morristown, Minn. It was planted in 1908 and first fruited in 1913. It was named in honor of Charles Haralson who for 15 years had been the superintendent of the fruit breeding farm at St. Paul, Minn.

The fruit of Haralson is medium sized, roundish-conic, resembling Wealthy in size and shape. The dots are greenish russet and are conspicuous. The color of the apple is greenish yellow and almost completely overlaid with red and is striped and splashed with red in the under-colored specimens. The core is small and closed and the calyx tip is conic. The flesh of this apple is white, firm and moderately tender.

Prof. M. B. Cummings examines the Haralson apple tree.

STATE NEWS

(Continued from page 18)

a period of five years. The percentage of scabby fruit in successive years was 6.7, 61.2, 99.6, 6.8 and 83.3. It is apparent that the difficulty of control varies tremendously from year to year. A new material for control therefore must be tried for several years, in order to see how well it will give control of scab under conditions of severe as well as slight infection.

A second set of records shows the scab infection in different years when one of the customary sprays was omitted. The most important spray for scab control in any given year was shown to vary. In 1930, the calyx application was most important. In 1931, the omission of the pink, calyx, 10-day, or mid-June spray resulted in severe scab infection. In 1932, the mid-June spray was essential if good control was to be secured. In 1933, the pink spray was all important. In 1934, any one spray could be safely omitted without fear of severe scab infection, provided all others were carefully applied. We apparently cannot predict with safety a long time in advance, what are going to be the critical spray applications. Therefore, a carefully worked out, complete program, and a careful check on the development of scab for timing are important.

The timeliness of application is several times more important than the materials used. Last year the period of bloom was so long that severe scab infection came during that period. No sprays are normally applied during this period for two reasons: fear of blossom injury, and danger of killing bees. Tests on blossom injury have shown that while some blossoms may be injured slightly, the danger of reducing commercial crops after one or two days of good pollinating weather is slight. Therefore, the main reason for not spraying during a prolonged bloom period for scab control, is the danger of poisoning bees. This reason is an important one. Bees are essential for cross-pollination.—E. P. CHRISTOPHER, Sec'y, Kingston.

KENTUCKY—In 1931, "topping sprays" on apples, applied midway between the regular sprays, were started because of the failure of the regular spray schedule to stop the codling moth in the tops of the trees. Many commercial producers of apples complained about a total loss of the fruit in the tops of trees in 1929 and 1930. In picking wormy fruit at thinning time, they often removed the entire crop of fruit in the tops of trees during these two years. This occurred during a time when codling moth infestation was very high.

It had been assumed that the chief reason for lack of control of the codling moth in the tops of the trees was because of failure to spray there as thoroughly as elsewhere. Therefore, when the first cover spray for codling moth was applied in 1931, special care was taken to spray the tops of the trees thoroughly, from the inside and the outside. But even with this precaution, it was soon found that codling moth worms were entering the fruits in about the same way they did in previous years. What was to be done? What could be more logical than to spray the tops of the trees at once? So the word went out through the spray service centers, and the spray was applied in the commercial orchards. The results were gratifying.

Then came the date for the second complete cover spray, with a repetition of the experience following the first cover spray. A second topping spray was applied with equally as good results as before. The spray practice was started in this way. During the short crop years there has been less use for it.

In our observations and tests, it was definitely established that the spray residue, even in fair weather, was reduced much more rapidly in the tops of the trees than elsewhere. In rainy and windy weather the contrast was even more pronounced. We also know that the codling moth lays more eggs in the tops of trees than on the lower limbs. In view of these factors, it was recommended that topping sprays be applied midway between the regular and the complete sprays.

The topping sprays usually require about 40 per cent of the materials used for a complete spray. Additional spraying in the tops of the trees at the time of the regular sprays did not secure the same good results as the special topping sprays.

For 1936 we are emphasizing, in Kentucky, the importance of controlling the codling moth during the first brood. Here a strong offensive will be planned and launched. This plan also avoids the heavy residues that cannot be removed, even by washing. The plan will include the use of the topping spray practice. Plans for control of the second brood worms will be made after it is found how effective the control of the first brood has been.—C. O. EDDY, Kentucky Agricultural Experiment Station.

NEW YORK—The New York State Horticultural Society not only holds a winter meeting at Rochester each year, but it also holds one at Kingston in the Hudson River Valley. In years past the Rochester meeting has been the principal gathering for growers in New York state. It has met in western New York for 81 years and is one of the oldest organizations of its kind in America.

Within the last generation, however, the Hudson River Valley has been coming slowly to the front—quite rapidly in the last 10 or 15 years. From a modest beginning in the late 90's, the eastern section of the society has developed until now it is a question in the minds of some whether the "tail may not begin to wag the dog."

The Kingston meeting has certain features which are peculiar to itself and which are worth noticing. First of all, eastern New York is in many respects more nearly a part of New England than it is a part of western New York. The soils of western New York, for example, are limestone soils, while those of the Hudson River Valley are non-calcareous, in common with most New England soils. The markets of the Hudson Valley are local and at the finger tips, exactly as they are in New England. The plantings are young and largely of the McIntosh variety. The methods of handling and storage are similar. Trucks from the great metropolitan area spread out fanwise through both New England and the Hudson River Valley. And finally, the leading

(Continued on page 28)

Monroe McCown, Indiana extension horticulturist braved wintry blasts for this shot at Indianapolis.

● Don't be a slave to pump-and-carry drudgery for another year! For only a few cents a day you can have water under pressure anywhere in the house. Before you buy any home water system, get our big free book—it tells you what this dependable, economical system can do for your home, no matter from what source you draw your water supply.

MAIL COUPON FOR FREE BOOK!

Fairbanks, Morse & Co.
900 S. Wabash Ave., Dept. 4791
Chicago, Illinois

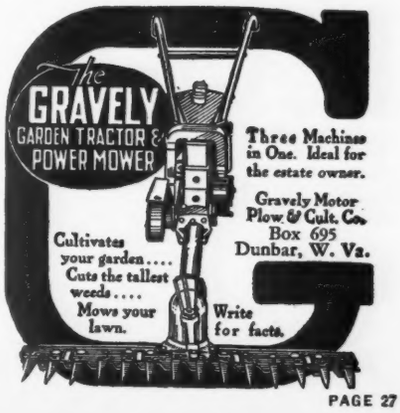
Please send me your illustrated free book on water systems.
My source of water supply is:
----Lake ----Shallow Well ----Stream
----Spring ----Deep Well ----Cistern
Have you electricity? ----Yes ----No

*Name*_____
*Address*_____ *R. F. D.*_____
*Town*_____ *State*_____

FAIRBANKS-MORSE
HOME WATER SYSTEMS
Engine or Motor driven for every farm or home use

WRITE for FREE CATALOG

FACTORY TO YOU
KITSELMAN FENCE
Guaranteed highest quality at lowest prices. Copper-Bearing Steel, 99 92/100% pure zinc galvanized. *Horse-high, Bull-strong, Pig-tight* Farm Fence; Poultry and Lawn Fence, Steel Posts, Gates, Barb Wire, Paints, Roofing. WE PAY FREIGHT.
KITSELMAN BROTHERS
Box 206 *Muncie, Indiana.*


The GRAVELY
GARDEN TRACTOR & POWER MOWER
Three Machines in One. Ideal for the estate owner.
Gravely Motor Plow & Cult. Co.
Box 695
Dunbar, W. Va.
Cultivates your garden....
Cuts the tallest weeds....
Mows your lawn.
Write for facts.

OPPORTUNITY ADS

Only 15c a Word—CASH WITH ORDER
ADDRESS: AMERICAN FRUIT GROWER,
1370 Ontario Street, Cleveland, Ohio

BABY CHICKS

GET YOUR CHICKS FROM WORLD'S LARGEST chick producers and save money. Leading breeds hatching daily. Big catalog free. COLONIAL POULTRY FARMS, Box A, Pleasant Hill, Missouri.

BEES

BEES Good sideline, pleasure, profit. Send $1.00 for one year subscription and 190 page book "First Lessons in Bookkeeping." Catalog free. **American Bee Journal, Box A, Hamilton, Illinois.**

PACKAGE BEES FOR POLLINATION. TWO-POUND package with queen, $2.45. Three-pound package $3.15. Four-pound package $3.85. Also cypress hives. Write for catalog. STOVER APIARIES, Mayhew, Mississippi.

INTEREST ON YOUR MONEY—WRITE AT ONCE. Bees—Orchard Packages—For Pollination. EELLS HONEY & BEE COMPANY, Houma, Louisiana.

PACKAGE BEES, 2 LBS. $2.45; 3 LBS. $3.15; 4 LBS. $3.85; 5 LBS, $4.55. W. O. GIBBS, Brookfield, Georgia.

SPECIAL LARGE ORCHARD PACKAGE BEES, FOR rent April Delivery by truck from Georgia. Prices reasonable. STOLLER APIARIES, Latty, Ohio.

BEES FOR CROSS POLLINIZING FRUIT BLOOM OR raising honey. Write for Prices. D. C. JACKSON, Funston, Georgia.

SEVERE COLD KILLING MANY BEES. PLACE orders now and do not be disappointed. RAPIDES APIARIES, Winnfield, Louisiana.

ORCHARD PACKAGES OUR SPECIALTY. WRITE for information and prices. COTTON BELT APIARIES, Route 2, Paris, Texas.

BEES! ORCHARD SWARMS $2.45; LARGE COMMERcial $3.15. Expressed. Guaranteed. Instructions furnished. MILLER BROTHERS, Whitsett, Texas.

PROMPT, DEPENDABLE SERVICE ON ORCHARD packages. Five-pound package $4.55. COFFEY APIARIES, Whitsett, Texas.

BERRY PLANTS

BERRY PLANTS OF SUPERIOR QUALITY
5,000,000 Strawberry Plants—Mastodon, Dorsett, Fairfax, Catskill, Premier and other Leading varieties. Raspberry and Blackberry Plants. Grape Vines, Currants and Gooseberry bushes. Asparagus roots. Our Spring 1936 Catalog is chuck full of good things. It's free. Write for it. BOUNTIFUL RIDGE NURSERIES, Box H, Princess Anne, Maryland.

THREE MILLION SUPERIOR QUALITY STRAWberry plants. Beaver, Premier, Blakemore, Dunlap—$1.00 per 200 plants; $4.00 per thousand. Everbearing Mastodon, Progressive, Gem—$1.00 per 100. Free catalog. MYERS NURSERY, Arcadia, Wisconsin.

CERTIFIED BLAKEMORE, AROMA, KLONDIKE Strawberries: 1,000, $2.00; 10,000, $17.50. Dorsett, Fairfax: 500, $2.50; 1,000, $4.25. Latham raspberries; Eldorado blackberries; youngberries: 10, 65c; 100, $2.50. SHELBY PLANT FARMS, Memphis, Tennessee.

BOOKS

BOOKS AND MAGAZINES ON ALL RURAL SUBjects. 3000 listed. State your exact interests. Free circulars. V. COUCH, Ithaca, New York.

DAIRY GOATS

DAIRY GOAT JOURNAL, DEPT. 603, FAIRBURY, Nebr. Monthly Magazine, 25c yearly; 5 months 10c.

FARM MACHINERY

BEAN AND HARDIE POWER SPRAYERS, OVERhauled in A-1 shape. Priced right. KENNEY MACHINERY COMPANY, 301 W. Maryland Street, Indianapolis, Indiana.

FILMS

12 ROLLS FILM $1.00. 120 OR 116. REFLEX, KIRKSville, Missouri.

FRUIT GRADERS

THE BUTLER SIMPLEX DIVIDES FRUIT INTO ANY four of eight different sizes. "Handles the fruit with rubber gloves." Freight paid east of Mississippi. Hand, $90.00; with electric motor, $115.00; with gasoline engine, $140.00. BUTLER MFG. CO., Conneaut, Ohio.

HOSIERY

BEAUTIFUL SILK HOSIERY, 5 PAIRS, $1; SAMPLE 25c. DIRECTCO, AF-221 W. Broad, Savannah, Georgia.

NURSERY STOCK

TREES OF SELECT QUALITY FOR SPRING PLANTING
We offer for Spring planting 150,000 one year apple, limited quantity two year olds, best new and older varieties. 150,000 select Peach Trees one year and June Buds. Nut trees all kinds. Ornamentals of all kinds. We specialize in growing apple and peach trees for commercial orchardists. All stock thoroughly inspected for trueness to name. 1936 Catalog ready. It's free. BOUNTIFUL RIDGE NURSERIES, Box H, Princess Anne, Maryland.

APPLE AND PEACH TREES—VIRGINIA'S LARGest growers of Fruit Trees offer a complete stock of Fruit Trees, including the New Double Red Varieties of Apple; also Golden Jubilee, Shipper's Red and Elberta Peach. 44 Page Planting Guide and Price List Free. WAYNESBORO NURSERIES, INC., Waynesboro, Virginia.

NEW NOTEWORTHY VARIETIES: NEWBURGH raspberry, Fredonia grape, Mcdonald rhubarb, etc. FARM OF PASCHKE, North East, Pennsylvania.

HARDY NUT TREES—BEST VARIETIES. CATALOG on request. JONES' NUT TREE NURSERY, Lancaster, Pennsylvania.

PEACH TREES, FRUIT TREE SEEDLINGS, ROOT Grafts. JONES NURSERY, Woodlawn, Virginia.

HARDY NORTHERN FRUITS. HEADQUARTERS FOR New Wayzata strawberry. Catalog free. FRUIT GROWERS SERVICE, 784 Eustis, St. Paul, Minnesota.

OLD COINS WANTED

COINS, INDIAN RELICS, BEADWORK, BOOKS Curios, Minerals, Stamps. Catalogue 5c. INDIAN MUSEUM, Northbranch, Kansas.

PATENTS

National Trade Mark Company
Munsey Building
Washington, D. C.
Trade Mark Specialists

PHOTO FINISHING

ROLL FILM DEVELOPED, 8 GUARANTEED CRYStaline prints and two double weight phototone enlargements 25c. Our work done by professionals. Quick service. PEERLESS PHOTO SHOP, La Crosse, Wisconsin.

ROLLS DEVELOPED. TWO BEAUTIFUL DOUBLEweight professional enlargements and eight guaranteed Never-Fade Perfect Tone Prints. 25c coin. RAYS PHOTO SERVICE, La Crosse, Wisconsin.

FILMS DEVELOPED ANY SIZE, 25c COIN, INCLUDing two enlargements. CENTURY PHOTO SERVICE, Box 829, La Crosse, Wis.

POROUS IRRIGATION HOSE

WRITE ABOUT POROUS HOSE IRRIGATING. B. & B. IRRIGATING SYSTEM, Port Clinton, Ohio.

POWER SPRAYERS

WRITE TODAY FOR THE NEW MYERS POWER Sprayer Catalogue. KENNEY MACHINERY COMPANY, 301 W. Maryland Street, Indianapolis, Indiana.

PRINTING

GUARANTEED QUALITY! TYPEWRITER RIBBONS 60c. 100 sheets 8½ x 11 Carbon Paper $2.50. Printing Specials! 250 Business Cards $1.00. 500, 8½ x 11 Letterheads and 500 Envelopes White Bond Paper, 4 lines printing $2.95. Mimeographing Supplies! Write: SEEJASER, 2459 Station St., Chicago, Illinois.

RHEUMATISM, NEURITIS

RHEUMATISM, NEURITIS, ACHES AND PAINS quickly relieved with Wintergreen Tablets, absolutely guaranteed. Write for free literature. Department A, THE KEENE PHARMACAL CO., Delaware & Ohio St., Indianapolis, Indiana.

SPRAY GUNS

CUSHMAN'S MODERN SPRAY GUN. A SCIENTIFIC fog producer designed by E. B. Cushman, founder of the Cushman Motor Works, Lincoln, Nebr., and L. W. Cushman, Missouri apple grower over 20 years and patentee of first spray gun 1908. Satisfaction guaranteed. Write CUSHMAN BROS., Station A, Palo Alto, California.

TREE BANDS

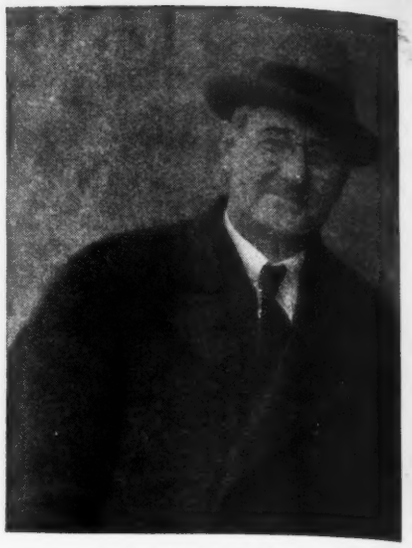
FOR PRICES OF TREE BANDS AND GRAFTING Wax in small or large quantities write EDWIN H. HOUSE, Saugatuck, Michigan.

VEGETABLE PLANTS

FROSTPROOF CABBAGE, EACH BUNCH FIFTY, mossed, labeled variety name, Jersey Wakefield, Charleston Wakefield, Succession, Copenhagen, Early and Late Dutch, Postpaid: 200, 65c; 300, 75c; 500, $1.00; 1,000, $1.75. Onion: Crystal Wax, Yellow Bermuda, Sweet Spanish, Prizetaker. Prepaid: 500, 60c; 1,000, $1.00; 6,000, $3.50. Tomato: Large, well rooted, open field grown, mossed, labeled with variety name. Livingston Globe, Marglobe, Stone, Baltimore, June Pink, McGee, Earliana, Gulf State Market, Early Detroit, Postpaid: 100, 50c; 200, 75c; 300, $1.00; 500, $1.50; 1,000, $2.25. Pepper mossed and labeled, Chinese Giant, Bull Nose, Ruby King, Red Cayenne, Postpaid: 100, 65c; 200, $1.00; 500, $1.75; 1,000, $2.50. Full count, prompt shipment, safe arrival, satisfaction guaranteed. UNION PLANT COMPANY, Texarkana, Arkansas.

GROW VEGETABLES TWO WEEKS EARLIER WITH our hardy field-grown plants. Cabbage, $1.00 thousand; Onion, 60c; Tomato, $1.50. Write for descriptive list. Largest Individual Grower. CARLISLE PLANT FARMS, Valdosta, Georgia.

PILES DON'T BE CUT
UNTIL YOU TRY THIS WONDERFUL TREATMENT
for pile suffering. If you have piles in any form write for a FREE sample of Page's Pile Tablets and you will bless the day that you read this. Write today. E. R. Page Co., 482-A6 Page Bldg., Marshall, Mich.



Clarence J. Neal, Cleveland grower snapped as he was entering the building in which the Ohio meeting was held

STATE NEWS

(Continued from page 27)

growers in New England and the Hudson Valley are from the younger group of men, who are just now growing up with their orchards.

Accordingly, by geography, soils, marketing problems, age of planting, and temperament, eastern New York and New England have much in common. This fact is reflected by the many New England growers who attend the Kingston meeting, and by the many Hudson River Valley growers who attend the meetings in the New England states. It is interesting to note just now that the New York-New England Apple Institute is composed largely of Hudson Valley and New England growers working together, led by an active, aggressive group which not only senses the fruit problems of the East, but is stepping ahead aggressively to meet these problems.

It is scarcely possible to write a scientific article on this trend, nor is it possible to compile figures and curves, yet if one is trying to keep abreast of the times and sense the trend of things, he will be alert to this close relation in the Northeast and the fact that something is very likely to develop from it.

Another interesting point about the Hudson River Valley is the spirit of comradeship and friendliness that prevails among the growers. At the banquet, for example, there were 400 in attendance this year—not only growers, but wives, sons and daughters—a family affair, with prizes being awarded to boys and girls for activities in connection with the fruit game. It is an exceedingly wholesome atmosphere and illustrates the point that fruit growers raise not only apples but a high-grade American citizen as well.

The speaking program at Kingston is well attended, possibly due in part to the fact that both the exhibits and the speaking program are housed in the same building. Another year the accommodations should be even better, since the tanbark Armory floor will be covered with concrete and the exhibit hall made larger and more comfortable.—H. B. TUKEY, Geneva.

UTAH—Dr. Lowry Nelson, formerly dean of Applied Science and director of extension service of Brigham Young University, was recently appointed director of the Utah Agricultural Experiment Station at Logan. Dr. Nelson comes to the U.S.A.C. from the position of assistant director of the Rural Resettlement Administration in charge of rural social projects. He will take up his new duties at the experiment station in June.—F. M. COE, Sec'y, Logan.

CROTALARIA MOVES NORTH

(Continued from page 9)

The seed are planted in the spring, as soon as danger of frost is past. Ten pounds are required per acre. The usual method is to broadcast them and disk them in, although they may be planted in rows and the plants given a cultivation or two. They can be sowed with a grain drill. Wherever the plant has been tried so far, good nodules were developed on its roots without inoculation.

Crotalaria was first sent to the Florida Experiment Station by the Office of Foreign Seed and Plant Introduction of the U.S.D.A. in 1909. For several years it was grown in the station's plant introduction garden, but it was not until after 1920 that the plant began to gain prominence. W. E. Stokes took up agronomy work at the Florida station in 1921. He noticed the Crotalaria plant and saw that it was growing well on the station grounds at Gainesville. He sent seed to other points in the state, and so, by 1927, the plant was an established cover crop in Florida citrus groves. It is now being grown in the winter truck crop soils of Florida also.

Crotalaria is an established summer cover crop in Florida and other southeastern states. It is gradually working its way north. Plenty of seed are now available, and they are selling at very reasonable prices.

In a few tests, the plant has been found excellent for northern orchards and vineyards. It is believed to be especially suitable for growth where a woody plant is desired to keep the snow from drifting against trees or vines during the winter. It is believed that it will be more satisfactory than rye or oats for this purpose, and at the same time will add more plant food to the soil.

The U.S.D.A. has tried Crotalaria at Washington and in Michigan and a few other northern states. In each case it has grown well, although the regular strains do not produce seed in the northern states.

Early strains which will mature in 100 days are now being developed by the experiment station and also by the Simpson Nursery Company of Monticello, Fla. R. A. Simpson and his son, R. H. Simpson, have selected seed from the earliest plants in their plantings and now they have a strain of spectabilis which produces seed in about 100 days from planting, and seems destined to become popular for northern plantings. It does not make quite the rank growth that regular spectabilis produces, but it makes a good growth nevertheless. R. H. Simpson estimates that it produces about two-thirds as much green material as the regular or later strains.

They have planted Crotalaria rather widely on their farms near Vincennes, Ind., and have found that it makes good growth there.

To date Crotalaria is not used as a forage crop, largely for the simple reason that animals refuse to eat the striata and spectabilis species. The Florida Experiment Station and U.S.D.A. are making extensive tests of all species as forage possibilities. They are feeding or attempting to feed it green, cured as hay, and made into silage. The tests have indicated that spectabilis is poison to animals, the other species are not. Both rabbits and dairy cows have eaten Crotalaria intermedia fairly well, and it is believed that this species may develop into a forage. The seed supply is extremely limited, and it will be two or three years before conclusive results can be obtained.

One grower, B. F. Williamson of Gainesville, Fla., has trained his cows to eat the striata species, and says he is selling Crotalaria beef at a premium. So far, cows have refused to eat the green striata in tests at the experiment station.

If it does develop into a forage crop, it will certainly be a poor land "alfalfa."

But whether it ever develops as a forage crop, it has already proved its worth as a cover crop, particularly on poor soils. It is believed that orchardists and vineyardists of the North will make no mistake in giving Crotalaria a trial, perhaps on a small scale at first, and determining for themselves what it will do.

ANSWERS

(to questions on page 14)

1. No. Self-sterile indicates the situation where no viable seeds are produced after self-pollination, while self-unfruitful means that no fruit is "set" after pollination with pollen from the same tree or another tree of the same variety.
2. Cutting-back is cutting off a portion of a branch, while thinning-out is to remove the entire branch or tree part.
3. Apple fruit buds are borne terminally on spurs.
4. Delicious.
5. Throwing a cultivated orchard into sod will increase the red color of the fruit.
6. Duke cheeries are hybrids between sweet and sour cherries and, like most hybrids, they are sterile.

Standard Garden Tractors

1 & 2 CYLINDERS

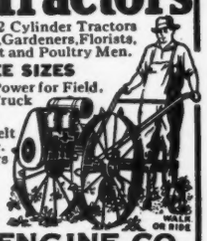
Powerful 1 and 2 Cylinder Tractors for Small Farms, Gardeners, Florists, Nurseries, Fruit and Poultry Men.

Plow Seed Cultivate Mow Hay and Lawns

THREE SIZES With Ample Power for Field, Haying and Truck Crop Tools.

Also Run Belt Machines, Pumps, Saws, etc. High Wheels-Enclosed Gears

LOW PRICES Write for Easy Terms Plan and *Free Catalog*



WALK OR RIDE

STANDARD ENGINE CO.

Minneapolis, Minn. 3211 Como Ave. | Philadelphia, Pa. 2448 Market St. | New York, N. Y. 208 Cedar St.

Don Byers' New Hardee Peach

Plant Patent No. 120

Stood test of 18 degrees below zero

Write for literature

FRENCH NURSERIES

Race Street — *Since 1863* — Clyde, Ohio

STRAWBERRIES PAY

Allen's 1936 Berry-Book Describes Best Methods, Plants, Varieties: Fairfax, Dorsett, Catskill, etc.

COPY FREE WRITE TODAY

THE W. F. ALLEN CO.

284 Evergreen Ave., Salisbury, Md.

The Quetta Nectarine and Polly Eades Apple

Write for full particulars on these two sensational varieties.

Other fruit, shade and ornamental trees. Catalog free.

GREEN RIVER NURSERIES

Box 86 — Robards, Ky.

Get LOW PRICES on Berry Boxes and BASKETS

Send or FREE CATALOG and SAVE MONEY. Tells you how to BUY DIRECT from the largest Berry Box and Basket Factory at Rock Bottom Prices.

NEW ALBANY BOX & BASKET CO., Box 102, New Albany, Ind.

GRAFTWAX—TREE HEALANT Heals pruned stubs. Arrests—cures tree diseases, blights, wounds. Water proof, adhesive. Excels in grafting. Hastens union of stock and scion. SMEARED ON COLD. Scions dipped in melted Graftwax keep indefinitely, prolonging grafting season. Curative tree cavity filler. GRAFTWAX SEALS AND HEALS. Free sample. 12 oz. can, 50c. 2 to 6 lbs., 50c Lb. 12 lbs., $5.00 Postpaid.

CLARION DEVELOPMENT COMPANY, INC., Dept. A, Clarion, Pa.

KILL GARDEN WEEDS with the BARKER

"Best Weed Killer Ever Used." Breaks surface into soil mulch at same time. Patented Filler Drum makes it 50% better than ever before. Works easily in any soil. 8 sizes. Very low prices. Write to

BARKER MFG. CO., Box 2, David City, Nebr.

Apple, Peach, Fruit Graders

that are dependable, at low cost.

Priced $100.00 and up.

For particulars write

PARMA WATER LIFTER CO., Parma, Idaho, U. S. A.

WATER PUMPS WATER

from spring, creek or artesian well having at least 2-ft. fall and flowing 2 gallons per minute or more. A Rife Ram pumps water to house and barn, or for irrigation. Continuous flow. No operating cost. Money's worth or money back. Send for catalog.

RIFE RAM & PUMP WORKS
BOX 17, WAYNESBORO, VA.

SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

This page is a place for growers to get together and exchange experiences and ideas. The beginner, as well as the veteran, will find here many practical suggestions for better and more profitable fruit growing. In return for the helps you receive from this page, be ready to pass on, for the benefit of others, any new idea, method or procedure you have developed or run across. Just jot it down as it occurs to you (a postcard will often do) and mail it to the "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER. Don't worry about fancy writing. What the readers of this page want are practical pointers—that are to the point.

FERTILIZER AIDS PEACH PRODUCTION

"MY production of peaches last year was about 50 per cent greater than that of my neighbors, and I don't mean to be bragging when I say this. My success, however, was due to a particular practice that I followed and which certainly paid me for the extra expense and labor."

This statement by Floyd Yahraus of Sevier County, Arkansas, should invoke curiosity as to just what he did to attain such a record. Satisfy your curiosity by reading of his experience.

"This extra fruit, with the resulting additional profit, was due primarily, I believe, to the fact that I applied three pounds of sulphate of ammonia to every tree in my 300-acre orchard just at blooming time. Any good nitrogen fertilizer would do the trick, I suppose, but the idea is to really apply it.

"Besides the application of fertilizer, I believe that thorough cultivation, good pruning and the right kind of spraying are helps in producing good crops. These practices also bring about the development of strong buds which can go through bad winter weather in better shape. The cold weather that we just had will probably cut my crop for this year, but I think I will have a fair yield."

GRAPE LEAF HOPPERS SUCCUMB TO NICOTINE

JOHN REICHENBACH, a retired hardware merchant of Columbus, Ohio, has apparently found a means of lessening the damage caused to his grapes by the troublesome grape leaf hopper. He writes:

"During my boyhood, my father was a grape enthusiast and is credited with origination of some of the older varieties. At that time I remember that he was not troubled to any great extent with insects. While I was a hardware dealer there was no opportunity to follow grape culture as I desired to do, but on my retirement a few years ago I secured a small plot of land from a friend of mine, Victor Stonestreet, who lives about 10 miles east of Columbus.

"On this plot we set out several grape vines, and they did well until one season we noticed small, pale-yellow bugs with red spots on their wings on the undersides of the leaves apparently feeding on the foliage. About a month later we noticed another type of insect that was somewhat smaller than the others and greenish-white in color, with no wings. These were the young of the insects we had first seen, according to our county agent who had been consulted when the insects became so numerous.

"Mr. Stonestreet and his brother, John, being in the tinning business, made a small boon for me which enabled me to spray the upper and lower sides of the leaves at the same time so the leaf hoppers could not escape. I used one-half pint of nicotine sulphate with the regular Bordeaux mixture spray and applied it twice for the first batch of insects and twice for the young after they became full-grown. I understand they pass the winter in the vineyard and cleaning up trash and litter will help to control them."

ROUT THE PEACH BORER IN SPRING WITH P.D.B.

"I HAVE always thought of controlling the peach tree borer in the fall, but last year I discovered something that will cause me to take measures against this pest in the spring as well as in the fall.

"The cold weather and then the drought which followed in 1934, weakened my peach trees and I decided that if the borers were there they would do double damage because of the condition of the trees. I cut open two of the trees that were too far gone to save, just after a long warm spell in April and found that the borers had come to life and were feeding and girdling the trees just as fast as they could. I decided then and there that in the future I would put paradichlorobenzene around the trees in the spring as well as in the fall.

"On some of the trees that we have near the house I apply the paradichlorobenzene, which we call P.D.B. (painless death for borers), in a band one and one-half inches wide on the ground about one and one-half inches from the trunk of the tree. On trees up to four or five years old we used three-fourths of an ounce of the chemical, and for the older trees we used an ounce. We then placed a mound of soil over the ring and packed it with the back of the shovel. We tore down the mounds on the younger trees about a month after application to let the gas escape, and on the older trees we left the mounds in place for about six weeks. In the orchard we used an emulsion of the chemical dissolved in cottonseed oil which speeded up the application. With the cold weather and injury of this season we should need this control of the borers even more."

This experience of Walter Miller of Lynnville, Ind., shows that every grower must be on the alert to catch the pests attacking his fruit, and gives us another phase in the control of the peach borer.

LAWYER SOLVES "HOPELESS" CASE

THE secretary of a large department store company and prominent lawyer wouldn't ordinarily be expected to untangle a difficult situation in the fruit growing game, but Charles S. M. Krumm of Columbus, Ohio, who is lawyer for the Ohio National Bank and secretary of Mobys Department Store tells how he solved the case.

"I have a summer place along the Scioto River near Columbus and I wanted to plant a few fruit trees about the grounds. I ordered them from a prominent nursery, planning to put them in that spring. It seemed a long period before I received the shipment and when I did, the trees were dried out and shriveled. On inquiry at the express office I found that they had been delayed during the shipment and that this was the cause for their condition.

"Having had no previous experience along these lines, I was stumped as to just what to do. I knew that the trees needed water, so, working on a hunch, I tied weights on the crate containing the trees and then sunk the entire package in the river. The trees were left there for a week and then taken out and planted. They grew in fine shape when planted and if it were not for the cicada, which attacked them a year or so later they would be there yet. One of them did survive the attack of the cicadas and it is producing a good yield each season"

This unique experience of Lawyer Krumm presents another angle on the revival of dried out stock.

MAKE CLEAN WOUNDS SAYS IOWA GROWER

D. P. INK of St. Charles, Iowa, says, "After several years of study and practice in pruning fruit trees, especially apple, I have observed that it is very important to make pruning wounds parallel and close to the parent trunk or branch, smoothing the cut edges of the bark and cambium, also the heartwood. Rough, uneven wounds do not heal readily, and make a favorable place for the entrance of disease and wood-rotting fungi.

"All wounds one inch in diameter or larger should be immediately covered with a good adhesive and elastic waterproofing wound compound containing a disinfectant to lessen the danger of the wounds becoming infected with wood-rotting or disease organisms.

"In my opinion I think it is best not to prune when there is too much frost in the wood of the apple trees because the bark and wood are brittle at that time."

Specify GRASSELLI if you spray for RESULTS

easier mixing | better coverage | more clean fruit

● Users of Grasselli Spray Products, through their own experiences and observations, know that our materials are of uniform high quality and are dependable for getting maximum results in the control of insects and in the protecting of crops against invasions of fungus diseases.

The Grasselli line of agricultural insecticides and fungicides is most complete, in fact, several are exclusively Grasselli products. You will not find a better or bigger line of this class of merchandise anywhere.

Furthermore, when you rely upon Grasselli Spray Products you are assured of "keeping up with or ahead of the parade," for we maintain an ably manned Research Department that is constantly working to develop ways and means of improving present products and develop new ones.

It will pay you to tie and stick to the use of Grasselli Spray Products.

THE GRASSELLI CHEMICAL COMPANY, INC.

GRASSELLI *Founded 1839* CLEVELAND, OHIO DUPONT

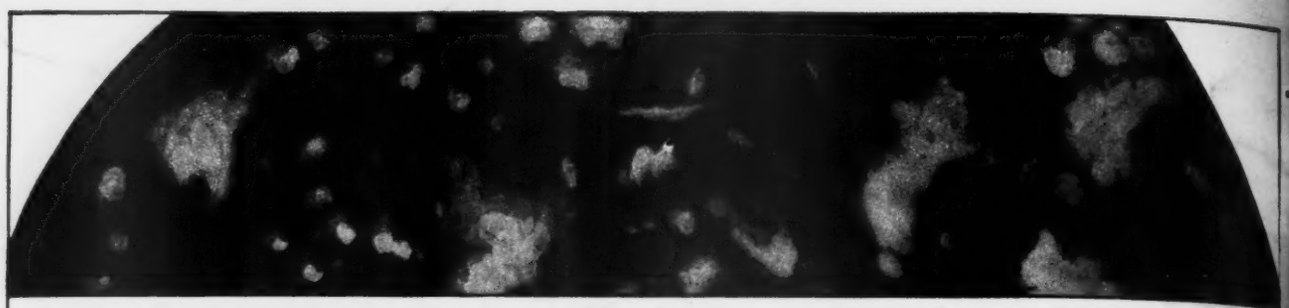
Write for our Growers' Guide and Spray Chart

Grasselli SPRAY PRODUCTS

Arsenate of Lead
Bordeaux Mixture
Calcium Arsenate
Dry Lime Sulphur
Dutox*
Lime Sulphur Solution
Loro*
Manganar*
NuRexform*
Paradichlorobenzene
Sulphate of Nicotine
Sulforon*
Zinc Sulphate
and many others
(* *Trade Mark Reg.*)

GRASSELLI GRADE

A standard held high for 97 years



EVERY SQUARE INCH OF THIS APPLE IS PROTECTED WITH 80 MICROGRAMS OF ARSENIC

USE THIS FREE CODLING MOTH CONTROL SERVICE

Our Spraying Service Department offers a new practical plan for better Codling Moth control. This plan will tell you more about Sherwin-Williams Arsenate of Lead, when and how to apply it and how to trap Codling Moths and band your trees to catch the worms . . . If you want the latest practical information on better Codling Moth control—write to Insecticide Department, THE SHERWIN-WILLIAMS CO., 101 Prospect Avenue, Cleveland, Ohio.

GREATER DEPOSIT WITH SHERWIN-WILLIAMS ARSENATE OF LEAD

Sherwin-Williams Arsenate of Lead deposits 80 micrograms of arsenic per square inch of apple surface which is necessary to control Codling Moth successfully. Many Arsenates of Lead will not deposit as much as this.

Sherwin-Williams Arsenate of Lead contains not less than 98% of actual Arsenate of Lead.

Use Sherwin-Williams Arsenate of Lead . . . the one that will give you greater deposit and better control of Codling Moth.

THE SHERWIN-WILLIAMS CO.
Insecticide Department
101 Prospect Ave. Cleveland, Ohio

SHERWIN-WILLIAMS
SPRAY AND DUST MATERIALS